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THE MEDICAL JOURNAL OF AUSTRALIA.

VOL. II.—6TH YEAR. SYDNEY: SATURDAY, OCTOBER 18, 1919. No. 16.

VERTIGO.[1]

By **M. C. Lidwill, M.D. (Melb. et Sydn., ad eundem gradum),**
Honorary Assistant Physician, Royal Prince Alfred Hospital; Senior Honorary Physician, Mater Misericordiæ Hospital, North Sydney.

I desire to bring before your notice to-night the causes and treatment of that distressing symptom vertigo. So often it is put down to biliousness and disorders of the digestion, as being the easiest way of accounting for this trouble. The text-books pass this subject over in a very cursory manner, making little or no effort to inform the reader why vertigo is developed in certain disorders.

In writing this paper I have tried to look at the subject from the physician's point of view. This has been very difficult, as there is no border line showing where the physician's domain ends and where the otologist's begins; so if I trespass slightly into the realm of the otologist, these specialists must forgive me.

Definition.

Vertigo may be defined as a sensation of rotation either of surrounding objects or of oneself, or to use an Americanism, a sensation of motion which is contrary to fact. It is often difficult for patients to describe accurately their sensations, yet if we accept the above definition as correct, most patients will be able to state whether their vertigo is subjective or objective.

Vertigo can, in most cases, be traced to some pathological condition, yet it may be produced in the normal individual by certain impressions or motions, *e.g.*, standing on heights, swinging, etc.. Here the anatomical and physiological data that we possess will more or less explain why this vertigo is produced.

Thus the vertigo produced by certain visual impressions may be accounted for by the connexion between the nuclei of the eye muscles or optic thalamus and the vestibular nerve.

Again, the vertigo produced by certain motions, *e.g.*, swinging, wave motion, etc., may be explained by the peculiar movements of the endolymph in the semicircular canals, producing impressions unfamiliar to our subconsciousness.

Anatomical Considerations.

Vertigo is produced by disturbances of the endolymph in the labyrinth or of its nerve supply. Before proceeding further it will be as well to draw your attention to certain anatomical facts in connexion with the internal ear and its blood and nerve supply, because without a knowledge of these facts, the production of vertigo is incomprehensible.

The internal ear consists of two parts, the cochlea or hearing part and the semicircular canals and vestibule, organs concerned in equilibration, particularly of the head and neck.

The blood supply of the internal ear is particularly important as disturbances of this will produce most distressing vertigo.

The internal ear is supplied by the internal auditory artery, a branch of the basilar. This internal auditory artery divides into two branches, one going to the cochlea and the other to the vestibule.

Here let me point that there is absolutely no other blood supply to the vestibule but this one branch. The same may be said of the cochlea.

From this we learn a most important fact, namely, that the vestibular and cochlear branches of the internal auditory artery are end arteries. Hence if they become sclerosed or thickened, there is a diminished blood supply to the parts supplied by them, as the blood cannot get to the membranous portion of the internal ear by any other route.

Let us now pass on to the nerve supply of the internal ear. The cochlea and its nerve, the cochlear, we may dismiss as being entirely concerned with hearing.

The vestibular nerve passes from the vestibule in contact with cochlear nerve and these are very closely associated with the seventh nerve. It then passes through internal acoustic meatus and arrives at the restiform body in the medulla, where the cochlear nerve leaves it. Arriving here, it passes backwards between the descending tract of the fifth and the dorsal spino-cerebellar tract to the vestibular nucleus beneath the floor of the fourth ventricle. The fibres now pass to Deiter's nucleus. Having arrived at Deiter's nucleus the tracts become very complicated.

From Deiter's nucleus, which, by the way, may be considered as a portion of the vestibular nucleus, fibres pass out to join the median longitudinal bundle. This bundle has connexions with the nuclei of the third, fourth and sixth nerves of both sides, these nerves supplying the muscles of the eyeballs.

Other fibres pass down to connect with the nucleus of the accessory nerve, which nerve supplies certain muscles supporting the head, *viz.*, the trapezius and the sterno-mastoid. By means of this nerve the vestibular nerve is brought into connexion with the vagus nerve.

The nucleus of the vagus lies very close to the connexions of Deiter's nucleus and there are in all probability more direct connexions between the two nuclei than by means of the spinal accessory nerve. Deiter's nucleus also sends fibres to the anterior horn cells of the spinal column by means of the Deitro-spinal tract.

From Deiter's nucleus fibres pass to the dentate nucleus in the cerebellum; from thence tracts pass to the cortex of the cerebellum and also to the red nucleus of the opposite side by means of the *brachium conjunctivum* (superior cerebellar peduncle). Other fibres pass to the *nucleus tecti* of the opposite side by way of the *tractus uncinatus*, where it is connected with the cortex of the vermes.

By means of the red nucleus, Deiter's nucleus is connected with the rubro-spinal tracts and the optic thalmus and from the latter with the cerebral cortex by means of the cortico-thalamic fibres.

[1] Read at a Meeting of the New South Wales Branch of the British Medical Association on September 26, 1919.

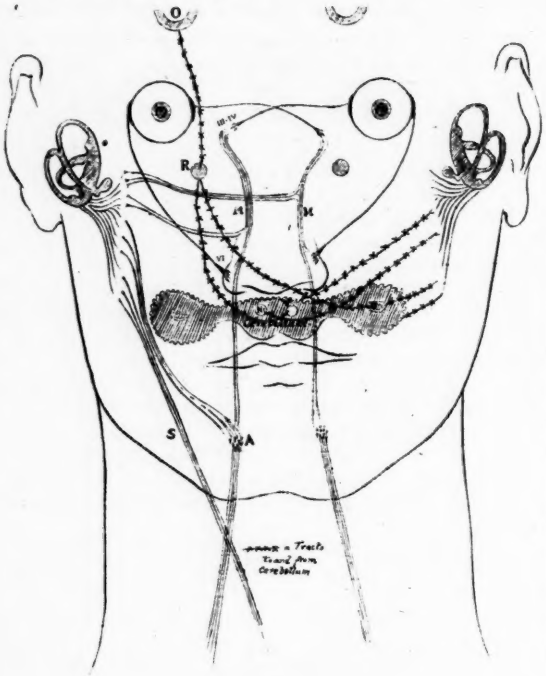

FIGURE I.

N1—Nucleus tecti.
R—Red nucleus.
D—Dentate nucleus.
M—Median longitudinal bundle.
A—Accessory nucleus.
O—Optic thalamus.
S—Deiter's spinal tract.
V—Vermes.

(Modified from Edinger.)

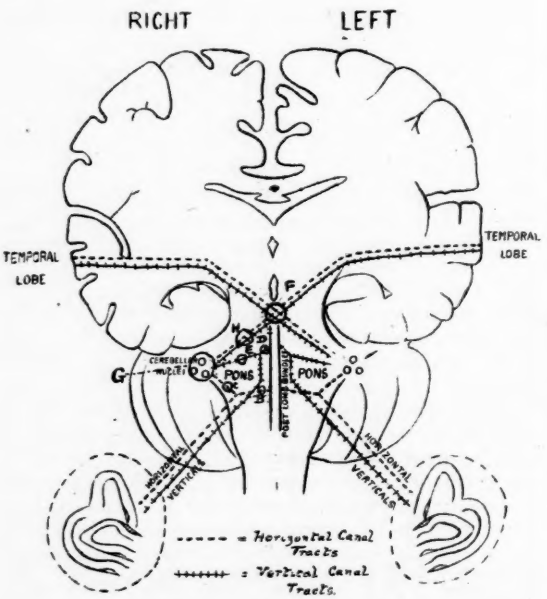

FIGURE II.

Diagram for cerebral localization. (Modified from Jones.)
See "Localization" in text, page 327-8.

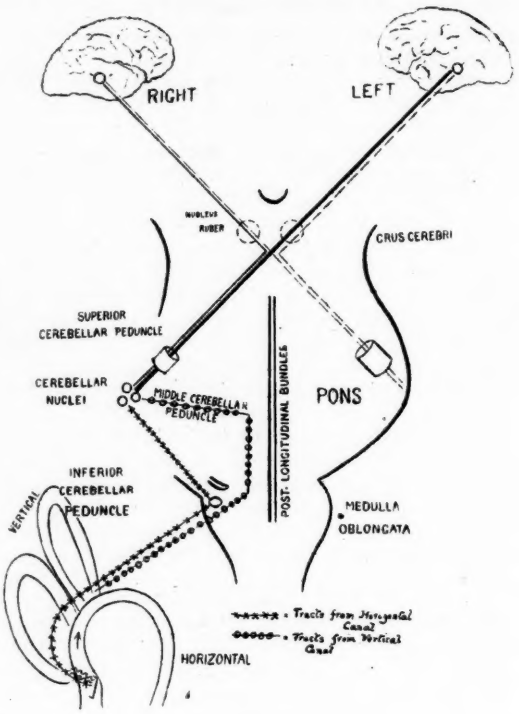

FIGURE III.

(Modified from Jones.)

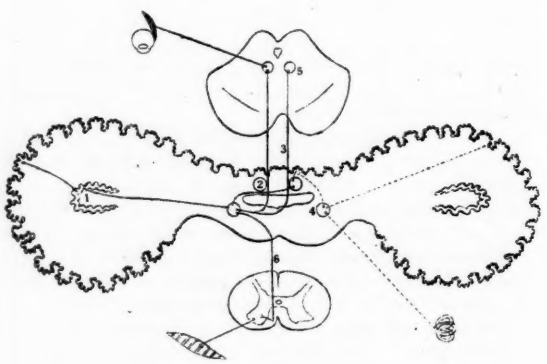

FIGURE IV.

1—Dentate nucleus.
2—Nucleus tecti.
3—Median longitudinal bundle.
4—Deiter's nucleus.
5—Oculo-motor nucleus.
6—Vestibulo-spinal tract.

(Friesner and Braun.)

Modern Research.

With regard to the tracts that pass from Deiter's nucleus to the cerebellum, it has been discovered that the tracts from the horizontal semi-circular canal pass into the cerebellum by way of the inferior cerebellar peduncle and those from the vertical canals by way of the middle cerebellar peduncle. After relaying in the cerebellum, they pass back to the cerebrum by way of the superior cerebellar peduncle.

There is supposed to exist a cortical area for the reception of visual vestibular impulses in the first and second temporal convolutions on both sides of the brain, close to the auditory centres, the centre on the right temporal region being in all probability more highly developed. These centres are connected by association fibres with the frontal lobes, where the appreciation of the sense of vertigo takes place.

You will note from the diagrams and from what I have said that the vestibular nerve is connected with the nuclei of the eye muscles of both sides, the cerebellum, the rubro- and Deitro-spinal tracts, the optic thalamus, the accessory nucleus, and so with certain muscles supporting the head, *viz.*, the trapezius and the sterno-mastoid and the nucleus of the vagus.

Hence it is easily understood that the vestibular nucleus may be stimulated and vertigo produced by impressions from the eyes, stomach, cerebellum, etc., without any stimuli coming from the internal ear.

Causes of Vertigo.

Coming now to the causes of vertigo, we find that it may be produced in a perfectly healthy person by certain factors:—

(*a*) Rotation.
(*b*) Swinging.
(*c*) Wave motion.
(*d*) Galvanism of the head.
(*e*) Syringing the ears with water above or below the temperature of the body.
(*f*) Stepping unexpectedly from a firm on to a boggy surface.

All the above factors cause an abnormal movement of the endolymph and this produces impressions unfamiliar to our sub-consciousness, hence the vertigo.

Again, vertigo may be produced by visual impressions, such as—

(*g*) Looking down from great heights.

This may possibly be explained by disturbances of orientation, abnormal stimuli passing down the median longitudinal bundle from the nuclei of the eye muscles to Deiter's nucleus and so to the vestibular nucleus, or possibly by the connexions between the optic thalamus and the vestibular nucleus.

Before passing on to the pathological causes of vertigo, I would like to point out that the labyrinth is an exquisitely sensitive organ, the tiniest movements of the endolymph stimulating the nerve fibre endings and producing impressions, conscious or subconscious.

Now if these fibres are made abnormally sensitive by some poison, injury or by some disturbance of their blood supply, such as congestion or anæmia, we will get excessive impulses passing along the nerve which are interpreted, not as the normal static sense, but as vertigo, just as we get the normal tactile sensation interpreted as soreness or pain where the nerve has been injured by poisons or trauma. That is to say, hyperæsthesia of the labyrinth is produced, and when this occurs the ordinary endolymphatic movements are interpreted as vertigo.

I think that we may safely say that vertigo is the equivalent of pain in the vestibular nerve.

Toxic Causes.

(1) *Alcohol.*—Here we have in all probability three factors causing vertigo:—

(*a*) The direct toxic action of the alcohol on the vestibular centre, making the vestibular nerve endings abnormally sensitive.
(*b*) Stimuli from the stomach passing along the vagus to Deiter's nucleus and so to the vestibular centre.
(*c*) Lowered blood pressure, causing labyrinthine anæmia.

(2) *Tobacco.*—Vertigo is often met with in heavy smokers, particularly cigarette inhalers. It generally comes on while changing the position of the head from the vertical to the horizontal, particularly on lying down, and it is occasionally complained of on rising in the morning. These patients complain that sometimes when they lean back in a chair and close their eyes, their head begins to swim.

The above symptoms, I think, are mainly due to the action of the tobacco poison on the vestibular apparatus, making it hyperæsthetic. This not being very great, the eyes are able to counteract the trouble after a few seconds. In some cases it is due to excessive blood pressure, brought about by too much tobacco, concerning which I will say something later on.

(3) *Certain ptomaines, e.g., botulism.*—In the only case of this poisoning that I have seen, vertigo was a particularly distressing symptom. Here the blood pressure two days after the poisoning took place was 90 mm. and the pulse-rate 42. As the blood pressure rose, the vertigo lessened, until at the end of about five days, when the blood pressure had risen to 115 mm., the vertigo had more or less disappeared.

(4) *Chronic intoxications, e.g., diabetes.*—I have seen two cases of diabetes where vertigo was a distressing symptom. Both patients suffered from symmetrical headache and one had slight ptosis due to paralysis of the sixth nerve. Here, I think, there was a neuritis of the vestibular nerve, making it abnormally sensitive, just as there occurs a neuritis in the legs of these cases.

(5) *Gastric disturbances* often produce vertigo, particularly before vomiting sets in. Here the connexions between the vagal and the vestibular nuclei will explain the symptom.

(6) *Constipation* sometimes sets up slight vertigo, which is probably vagal or toxic in origin.

(7) *Medicines.*—Certain drugs, *e.g.*, hashish, ether, chloroform, etc., may cause vertigo, but I do not propose to touch on this matter, except to mention that troublesome vertigo has been known to follow the administration of an anæsthetic.

(8) *Chronic sepsis* is by no means an uncommon cause of vertigo. It is well known that the toxins in cases of chronic sepsis may attack certain nerves, *e.g.*, optic neuritis may be set up by pyorrhœa. Just in the same way the vestibular nerve may be attacked, making it abnormally sensitive, the ordinary stimuli

being interpreted as vertigo. The most common site of chronic infection which causes vertigo is the tonsil. The teeth should be examined for pyorrhœa and the urine for pus. If any septic focus is found, it should be immediately treated. About six years ago I saw a lady suffering from moderately severe vertigo. On examination I found that she was suffering from pyelitis. When the patient was cured the vertigo completely cleared up. Since then there has been no recurrence of vertigo.

Certain General Diseases.

(*a*) *Anæmia.*—The vertigo here is familiar to all and is due to the anæmia of the labyrinth.

(*b*) *Cerebro-spinal meningitis.*

(*c*) *Mumps.*—Vertigo may develope quite suddenly during this disease, without any involvement of the middle ear, possibly owing to a metastatic labyrinthitis.

(*d*) *Typhoid fever.*—Vertigo may develope during typhoid fever and occasionally it may continue for a very long time after the attack is over. This condition is in all probability brought about by the direct action of the toxin on the vestibular nerve.

In cases of chronic Bright's disease, leukæmia, pernicious anæmia and possibly any of the hæmorrhagic diseases, sudden bleeding into the internal ear may take place and produce symptoms of profound Menière's disease.

Syphilis may attack the internal ear, but most commonly the cochlea is involved and the vestibule goes free.

Disturbances of the Circulation.

Disturbances of the circulation are probably the most common factors in vertigo, particularly from 40 years onwards.

(1) *Arterio-sclerosis.*—How often do we see old people with most distressing vertigo, often accompanied by tinnitus. On examination we find their arteries like pipe stems. The cause of the vertigo in these cases is a thickening of the internal auditory artery, leading to an ischæmia of the labyrinth. The ischæmia is more marked in the labyrinth than in most other parts, for, as I pointed out to you before, the internal auditory artery is an end-artery without any anastomoses.

The otologist in these cases will often find otosclerosis, which is another factor making the vertigo worse. With regard to relieving this vertigo, very little can be done; bromides and arsenic seem almost useless. Occasionally *liq. trinitrini* in 0.15 mil doses three or four times daily gives a certain amount of relief and at other times alcohol appears to do good. But in the end the patient is no better for his treatment and has to put up with the vertigo as one of the infirmities of old age.

(2) *Excessively high or low blood pressure.*—(*a*) Excessively high blood pressure is possibly the most common cause of vertigo in the middle-aged. The question arises as to how this is brought about.

When we consider the labyrinth, we find that it is an enclosed bony box, practically incapable of expansion. Now, if into this blood is pumped at an excessively high pressure, a certain amount of damage to the enclosed structures is liable to take place. This injury is not sufficient to leave any permanent damage, but only makes the nerve endings more irritable. Hence, as I have explained before, the normal stimuli produce excessive nerve impulses, which are interpreted as vertigo. An analagous condition is seen in cases of headache due to an excessive blood pressure. The labyrinth is built to stand a certain amount of pressure, and this amount increases with age. Hence it is most important to bear in mind the age of the patient when considering the height of the blood pressure as a cause of vertigo. To put it more simply, the blood pressure must be too high for the age of the patient.

I found a case of troublesome vertigo in a man, aged 38, with a blood pressure of 170 mm., but when his blood pressure was reduced to 146 mm. the vertigo disappeared.

Very often these patients have some slight trouble in the middle ear, such as slight middle ear catarrh, etc., which should be treated. A large number of these persons respond abnormally to Bárány's reactions, the reactions being generally excessive, owing to the hyperæsthesia of the labyrinth.

(*b*) Excessively low blood pressure will also cause vertigo. Young people, after prolonged mental and physical strain, such as nursing a parent through a long illness, occasionally complain of severe vertigo, which becomes worse if the strain continues. In severe cases the attacks may occur once or twice a day and last from a minute to about an hour. These patients often complain of tinnitus, which, on carefully questioning them, appears to be of two kinds, one being a steady hissing and the other a pulsating tinnitus. (While passing, I might mention that in cases of high blood pressure the pulsating tinnitus is never complained of, but only the buzzing or hissing.)

On examination it will be found that these persons are suffering from an abnormally low blood pressure, and that there is no abnormality to be made out on examination of the ears. Raising the blood pressure relieves the vertigo.

The treatment in these cases then is first to examine the ears and treat any trouble there and then to raise or lower the blood pressure, as is indicated. In cases where the blood pressure is too low, large doses of liquid extract of ergot or ernutin, combined with dilute hydrobromic acid in 2.5 to 3.6 mil doses three times daily and a full meat diet will very soon relieve the patient, especially if this is combined with a change to the sea side. Where the blood pressure is too high *liquor trinitrini* and hydrobromic acid, as above, will relieve when combined with suitable dietetic and general treatment.

(*c*) Cardiac disease, especially aortic valve trouble, is often accompanied by vertigo, on account of the disturbances of the circulation in the labyrinth.

If there is much anæmia present, this may also cause vertigo.

It will be of interest to note that in these cases pressure over the carotid will often relieve the vertigo.

(*d*) Angio-spasm of the labyrinth.—This peculiar and rare condition has been described. The attacks resemble ophthalmic migraine and intermittent claudication. A patient with previously normal hearing is first attacked by a feeling of heaviness on one side of the head, accompanied by tinnitus and a gradually oncoming deafness, which becomes complete in a few

days. This is followed by severe vertigo and vomiting, such as to keep the patient in bed for some hours. As soon as the storm has blown over, the deafness and vertigo completely disappear. These attacks are followed by others, with an interval between each.

(3) *Neuroses.*—(*a*) Menopause.—Vertigo is often an accompanying symptom of the climateric, due probably to vasomotor disturbances in the labyrinth, just as flushing and other vasomotor disturbances occur at this time of life. The ears should be carefully examined and, if possible, the patient's Bárány's reactions taken. If there is no ear trouble, the vertigo will generally clear up with full doses of bromides or ovarian extract.

(*b*) Hysteria is a rare cause of vertigo. No diagnosis is easier to make than that of hysteria. It is so easy to say that the patient is suffering from hysteria, but this should never be done unless every other cause has been excluded.

(*c*) Neurasthenia other than traumatic neuroses.—This is stated to be a cause of vertigo, but I think in this case is only a cloak to shield the physician's ignorance.

(*d*) Traumatic neuroses.—Many persons after head injuries complain of vertigo and many of them are wrongly classified as neurasthenics. The following was a case under my care at the Royal Prince Alfred Hospital, which was supposed to be a traumatic neurosis.

F.S., aged 39 years. Three years ago he was thrown from a cart and was taken to hospital suffering from a fractured base. Ever since this accident he has noticed that when turning on to his back or right side or rising from bed, however slowly, he suffers from vertigo. If he remains in this position, the vertigo passes off. Careful examination showed that there was no deafness, but Rombergism was present, the patient falling to right and an abnormal Bárány's reaction. These last two phenomena show that the condition had a definite organic basis.

Many years ago Friedmann pointed out that a great number of these so-called cases of traumatic neuroses had definite organic bases. There were changes in the small cranial vessels and their surrounding tissues.

(4) *Diseases of the Brain.*—(1) Epilepsy must always be considered as a possible cause of vertigo. In these cases, which are really cases of *petit mal*, the vertigo comes on suddenly from time to time, with absolutely no giddiness between times. On questioning the patient's friends we find that when these attacks come on, the sufferer is pale and there is very little disturbance of consciousness. Sometimes severe attacks of vertigo may develope in certain people as epileptic equivalents. The Bárány's reactions in these cases are normal.

(2) Syringomyelia. Schultze, of Bonn, mentions vertigo as an occasional distressing symptom of this disease. It is independent of muscular disturbances of the eyes. It may be so intense as to cause falling. In the two cases of this disease that I have seen during the past five years, vertigo was not a symptom.

(3) Multiple sclerosis. Sometimes patients suffering from this disease suffer from vertigo. This may be accounted for by the involvement of some of the vestibular tracts in the sclerotic process.

(4) *Tabes dorsalis* has occasionally been complicated by severe vertigo.

(5) Abscess of the brain. This will not be touched on here, as it comes under either brain tumours or as part of a suppurative process spreading from the ear.

(6) Tumours of the brain. (*a*) Acoustic nerve tumours. Acoustic neuromata are not very uncommon and are often in the early stages disregarded by the physician until very marked symptoms show themselves. The early recognition of this condition is of importance, as many cases have been successfully operated upon. The first symptoms to show themselves are auditory and labyrinthine. The patients generally complain of a slight vertigo and on very careful examination slight deafness will also be found. These symptoms may be the only ones of a year or more. Then come occipito-frontal pains, with suboccipital discomfiture. Third come inco-ordination and instability of cerebellar origin and, fourth, involvement of cerebral nerves. Fifthly there are signs of intracranial tension, such as choke disc, while, sixthly, there is dysarthria, dysphagia and finally cerebellar crises and respiratory difficulties.

(*b*) Cerebellar tumours. A great number of patients with cerebellar tumour suffer from vertigo. This symptom is in reality not a true cerebellar phenomenon, but only a sign of irritation of the vestibular system. The diagrams clearly demonstrate how this may take place. Cerebellar ataxia and hypotonia are practically always present in these cases and Bárány's pointing tests will help in localizing the trouble.

A good deal of stress has been laid by certain writers as to the direction of movement of external objects and of the patient during attacks of vertigo in cases where the tumour is of intra- or extra-cerebellar origin. In both cases the rotation of the external objects is towards the sound side, while the imagined movement of the patient is towards the sound side in cases of intra-cerebellar tumour and towards the affected side in cases of extra-cerebellar tumour.

As I pointed out before, it is very difficult to get patients to remember in which direction they appeared to be going or in what direction the external objects appeared to move during an attack of vertigo.

(*c*) Tumours of the cerebellar-pontine angle. Most of these arise from the acoustic nerve and have been discussed previously. The others set up vertigo owing to pressure on the vestibular nerve. It is not possible in this paper to go into details concerning the many lesions that may arise in this region.

Among other lesions that may give rise to vertigo are:

(*d*) Pontine tumours.

(*e*) Small pontine hæmorrhages and thromboses in and about the region of the vestibular nerve or its nucleus.

Localization.

The following rules, which are based on our anatomical knowledge checked by *post mortem* findings, will be found extremely useful when trying to localize a pathological condition of central origin where vertigo is a marked symptom.

(1) If, after stimulating the ear, no responses are obtained either from the hearing tests or the vestibular tests, the labyrinth or eighth nerve is dead.

(2) If stimulation of the horizontal canal produces no nystagmus, but normal vertigo and past pointing, the lesion is located in the medulla between Deiter's nucleus and the posterior longitudinal bundle (B).

(3) If, after stimulation of the horizontal canals, there occurs normal nystagmus, but no vertigo and no past pointing, the lesion is probably in the inferior cerebellar peduncle on the same side, or at a point beyond in the vestibulo-cerebello-cerebral tract.

(4) If stimulation of the vertical semicircular canals produces no nystagmus but normal vertigo, past pointing and falling, the lesion is located in the posterior portion of the *pons* between the situation where the nystagmus and the vertigo fibres divide and the posterior longitudinal bundle. Should the lesion exist further backwards towards the medulla, it would involve both the nystagmus and the vertigo fibres of the vertical canals (D).

(5) If stimulation of the vertical canals produce normal nystagmus but no vertigo, past pointing or falling, the lesion is probably in the middle cerebellar peduncle or beyond at some point in the vestibulo-cerebello-cerebral tract (E).

(6) If stimulation of the both horizontal and vertical canals of one side produce normal nystagmus, but no vertigo, past pointing or falling, a lesion of the cerebellar nuclei of that side is indicated (G), or it may be in the upper part of the *pons*, where these fibres come together again at their decussation in the superior cerebellar peduncle (H). At the latter site conjugate deviation of the eyes instead of nystagmus may occur, showing involvement of the cerebro-ocular tract, which transmits stimuli for the production of the fast stimuli of the nystagmus.

(7) If stimulation of all the semicircular canals of both ears produces normal nystagmus, but no vertigo, past pointing or falling, there is probably a lesion at the decussation of the two superior cerebellar peduncles (F).

(8) If there is total deafness in the right ear and stimulation of right horizontal canal and right and left vertical canals produces no nystagmus, no vertigo, past pointing or falling, but stimulation of the left horizontal canal produces normal reactions, the lesion is probably located in the right cerebello-pontine angle.

Ocular Vertigo.

Apparently three conditions of the eyes may cause vertigo:—

(1) Disturbances of accommodation.
(2) Diplopia.
(3) Standing on heights.

Any sudden attack of diplopia due to paralysis of the ocular muscles, may be attended by vertigo.

Lesions of the third, fourth or sixth nerves or *ophthalmoplegia externa* produce vertigo, uncertainty of gait and often nystagmus. Ocular vertigo immediately ceases on closing the eyes or when the patient dose not use the affected eye.

The connexions between the ocular nuclei and the vestibular nucleus by means of the median longitudinal bundle and Deiter's nucleus will explain why vertigo is produced.

Diseases of the Ear.

It is not my intention to pass into the realms of the otologist, but while passing I would like to mention some of the commoner causes of vertigo due to ear trouble.

(1) Wax in the ears.
(2) Middle ear catarrh, particularly in the middle-aged.
(3) Obstruction of the mouth of the Eustachian tube, particularly in the elderly.
(4) Oto-sclerosis.
(5) Extension of inflammation from the middle ear to the labyrinth.

Before leaving the ear I should like to say a few words about Menière's disease.

The name Menière's disease is wrongly attached to any attack of severe vertigo. The true Menière's disease is rare. It is a primary apoplectiform affection of the labyrinth. The symptoms are as follows: The patient, who may or may not be in good health, is suddenly attacked by vertigo, usually extreme, together with tinnitus, vomiting, cold sweats, pallor and nystagmus. There is sometimes loss of consciousness, as in one case I saw of leucocythæmia, with probably hæmorrhage into the labyrinth. If the patient recovers, hearing is nearly always completely lost. The vertigo varies in severity, but usually after some time markedly improves.

Treatment.

There is no disease where it is more important for the physician and the otologist to work in conjunction. One or other will sooner or later come to grief if he attempts to undertake the treatment of a case of vertigo without his *confrères* having made an exhaustive examination. For example, a patient may be suffering from vertigo, due partly to excessive blood pressure and partly to slight blockage of the Eustachian tube. The otologist may miss the excessive blood pressure, but the physician will almost certainly miss the Eustachian tube blockage.

Before any treatment is commenced a thorough examination should be made of the patient, particularly with regard to blood pressure, and the ears should be carefully examined, preferably by an otologist. If anything be found to account for the trouble, it should be remedied.

In many cases the primary cause cannot be removed and in these cases I have found the following treatment very useful:—

Absolute rest in bed, preferably in a hospital. The diet does not matter much, so long as you do not overfeed the patient. Particular care should be taken to see that the bowels are kept well open, at first with calomel and then with some laxative. Dilute hydrobromic acid in doses of 2.5 to 3.6 mils should be given by the mouth three to six times daily, with or without small doses of strychnine. If this does not relieve, small doses of quinine may be added, remembering that sometimes quinine makes the condition worse. In event of this failing, relief is generally obtained, particularly if the vertigo is accompanied by tinnitus, by hypodermic injections of pilocarpine nitrate, starting with 0.005 grm. once daily and gradually increasing it up to three or four times daily and, if necessary, increasing the size of the dose, so as

to keep the patient in a mild perspiration. One does not desire to produce profuse sweating, but only a wetness of the skin. Toleration of this drug is soon established, so that one may give, say, after a couple of weeks, as much as 0.01 grm. three or four times daily. Be very careful that the patient, while under pilocarpine treatment, does not catch cold; he should be clothed with wool and sleep between blankets.

A little while after improvement commences, the pilocarpine may be gradually reduced in quantity, and generally at the end of about three or four weeks it may be discontinued altogether.

The hydrobromic acid should be continued for another two or three months. As soon as the patient is well enough, he should be sent away to live by the sea for at least three months. On no account should he be allowed to go to the mountains. Time and again I have seen relapses follow on patients going up to high altitudes. The patient should be informed that he should immediately go back to his bromide mixture when the vertigo begins to be felt. If the condition prevents sleep, barbitone may be tried. If this fails, tincture of opium, given unbeknown to the patient for a night or two, will produce the desired effect.

OBSERVATIONS ON CONGENITAL SYPHILIS.[1]

By **Ellen M. Kent Hughes, M.B., B.S. (Melb.),**
Resident Medical Officer, Hospital for Sick Children, Brisbane.

This paper is not intended to be in any way a comprehensive one on the subject, but is merely an account of the cases of congenital syphilis diagnosed at the hospital during the past nine months and the treatment of the same.

Types.

The ages of the patients varied from three weeks to eight or nine years. The most strikingly successful cases have been those of breast-fed babies with skin lesions. Most of the syphilitic infants look healthy when born and if they are breast-fed and treated immediately the lesions appear, they do well. Artificially-fed infants have been very difficult to treat and most of them died of gastro-enteritis. However, it must be remembered that they were all admitted to hospital for that complaint and the syphilitic condition was discovered afterwards.

The skin lesions amongst the infants have varied considerably. One baby of three weeks old was covered from head to foot with scaly circinate sores resembling rupiæ; they cleared up completely after two injections. Others had scattered papules and macules on the body and intense erythema of the buttocks. The commonest lesions were peeling macules of fingers and toes and buttock rash. Many children had snuffles.

The older children, as a rule, have been well developed and have none of the classical stigmata, such as saddle-back nose, Hutchinson's teeth, frontal bossing, etc.. They have been suffering generally from one special manifestation of the disease and because they look healthy, their condition is undiagnosed. Several apparently perfectly healthy children whose serum yields a positive Wassermann reaction, are being treated, as their brothers or sisters have various lesions. We have had four cases of troublesome glossitis, all associated with positive Wassermann reaction; three appeared otherwise healthy, the fourth was sent in with myocarditis and had been three months in bed. There have also been two cases of delayed dentition and one of caseation and infiltration of the cervical glands and necrosis of the nasal bones. Another child was admitted partially paralysed with meningitis. Two children with strabismus gave a positive Wassermann reaction. In one the disease was congenital and in the other the symptoms had only been noticed for four months.

A positive Wassermann reaction was obtained in all the older children, but some of the obviously syphilitic infants gave a negative response to the test. In two of these cases I tested the mother's blood and found a positive reaction. On the other hand, the serum of the mothers of several syphilitic infants gave negative results.

Treatment.

It is agreed by all authorities that the arsenical preparations combined with mercury and iodides give the best results. The method of administration of arseno-benzol to children has always been a troublesome question. We had to adopt a quick method, as we do nineteen injections in a morning in addition to our usual work.

Various methods have been tried by different writers:—

(1) The drug is given intravenously. This is quite impossible with infants and children, as even the older ones have not large enough superficial veins for intravenous medication. An anæsthetic has always to be given, as the children will not sit still and you generally have to go through the tedious procedure of cutting down on to a vein.

(2) The drug is given into the anterior fontanelle. I have never seen this done and, as it seems risky, have not tried it myself. In any case, this method could only be used for infants.

(3) The drug is given rectally. Each child would have to have a bowel wash out and many would immediately expel the injection.

(4) Intramuscular administration. This method is always used at the Hospital for Sick Children. I have followed the directions given by Colonel Harrison in his book "The Treatment of Venereal Diseases."

We use either novarseno-benzol or neo-kharsivan, as they cause less inflammation than arseno-benzol or kharsivan. Neo-kharsivan causes the least pain, but I use novarseno-benzol, as I can get it for nothing from the Public Health Department.

The drug must be freshly dissolved. I give the dispenser a list of the doses required and he dissolves the 0.9 gramme in each tube in 27 c.cm. of freshly distilled water. He strains the solution once and puts the dosage required into a series of labelled bottles. All utensils are boiled, as strict asepsis is required. According to this measurement a 0.1 gramme dose is represented by 3 c.cm. of the solution. To a dose

[1] Read at a Meeting of the Queensland Branch of the British Medical Association on September 5, 1919.

of this size is added 0.3 c.cm. of a 0.2% cocaine solution; more or less can be added to larger or smaller doses. The bottles are lightly plugged with sterile cotton wool and are used for injection immediately. Local pain and inflammation are prevented by the use of "creo-camph. cream," Colonel Harrison's formula for which is as follows:—

℞—

Creosote, 3.6 mils..
Ac. camph., 2.4 grm..
Anhydrous lanoline, 30 grm..
Aq. distillata, 8.6 mils..
Paroleine, 40.0 mils..

N.B.—The camphoric acid must be very finely powdered.

For injection an ordinary syringe is used with a moderately large needle. One to two cubic centimetres of "creo-camph. cream" are drawn up into the barrel; the needle is then fitted on and the mixture of novarseno-benzol and local anæsthetic is drawn up into it.

The injection sites chosen are the outer and upper quadrant of the buttocks and under the pectoral muscles. Each week a different site is used. Without "creo-camph. cream" there is much more inflammation and liability to abscess formation. I have had seven abscesses, three in one child, out of 200 injections. As a rule there is swelling and tenderness of the injection site for two or three days, which is relieved by fomentation. The mothers say the babies seem quite undisturbed and eat and sleep as usual. The older children walk home without a complaint and only have slight stiffness afterwards.

The method is simple and quick and is most effective for apparent lesions. Colonel Harrison lays stress on the necessity of multiple injections, even if the patient appears cured; as I have only been working at this subject for ten months I have simply followed his teaching.

Initial Dose of Novarseno-Benzol or Neo-Kharsivan.

Under 1 year	0.05 gramme
1 to 3 years	0.1 gramme
3 to 5 years	0.15 gramme
5 to 7 years	0.2 gramme
7 to 9 years	0.25 gramme
Over 9 years	0.3 gramme

Six weekly injections are given. For infants under one year the dose is increased by 0.01 grm. each injection. For children under six years the dose is increased by 0.02 grm. and over six years by 0.03 grm. each injection.

Mercury in the shape of *hydrargyrum cum creta* orally, or collosal *hydrargyrum* by injection is administered together with the arsenical preparation. The tablets are taken daily (0.015 to 0.06 grm.) three times a day according to the age. The injections are given weekly; 0.6 c.cm. is the dose for children of six. Other patients are treated by inunction, 0.6 to 1.2 grm. being rubbed in daily. There has been no time to say which method has been the most effective; all in-patients are treated by inunction and also those out-patients whose parents are reliable.

After the six weekly injections of novarseno-benzol, mercury is continued for three months and then a Wassermann test is performed. If it is negative mercury is continued for a month, potassium iodide is given the next month and then the patient has a month's rest. If the Wassermann test is again negative the treatment is repeated; if it is positive another course of novarseno-benzol is given, the initial dose of the second course being the same as the fourth dose of the previous series.

Results.

The results of treatment up to the present time are embodied in the reports of the following selected cases:—

Case I.—M.M. (November 1, 1918), aged 8 months.

Family history.—The patient is a first child.

She is a poor sleeper and is very fretful. She has snuffles and sores on her hands and feet. She has cut eight teeth, which become decayed and loose as soon as they come through. One has fallen out; two are very loose. She is dull and listless; her complexion is sallow and hair scanty. The Wassermann reaction is positive.

April 22, 1919.—She is walking well and has a bright colour. Her skin is clear. Although the loose teeth fell out, no others have loosened and the teeth cut since injection are white and healthy. She is no trouble now and is exceptionally bright for her age.

August 29, 1919.—The Wassermann reaction is still positive. She is looking well.

Case II.—G.H. (November 24, 1918), aged 4 years.

Family history.—The father and his two elder children yielded positive Wassermann reactions. The two elder children have interstitial keratitis.

He is a stunted, drowsy boy, suffering from chronic bronchitis. His waist measurement at the level of the umbilicus is 67.5 cm.. His serum gave a positive Wassermann reaction.

July 27, 1919.—He has grown 10 cm.; his waist measurement is 60 cm. and he has had no more bronchitis. He is a much healthier child. The Wassermann test yielded a negative response.

Case III.—W.C. (October 22, 1918).

Family history.—The patient is a first child. The Wassermann reaction of her mother's serum is positive.

The child's weight is 2.95 kilos.. He has snuffles and typical lesions on his hands and feet. He is breast fed. The Wassermann reaction is negative.

April 28, 1919.—He is a fine, rosy-cheeked baby, weighing 8.16 kilos..

Case IV.—G.K. (February 22, 1919), aged 3 years.

Family history.—The mother's pregnancies were as follows: (1) a still-born child (premature), (2) child lived five hours, (3) the patient, (4) a jaundiced baby, died when three weeks old.

He has had a wart on his lip since infancy, which has been increasing in size lately. It is now an ulcerating, indurated sore of the size of sixpence. The Wassermann reaction is positive.

April 29, 1919.—The wart has disappeared a few days after the first injection and has not left any scar.

Case V.—W.B. (June 13, 1919), aged 2 years.

Family history.—The patient is a first child.

The child has always been pale and sickly and cannot walk steadily. He had measles a month ago. A week ago swellings were noticed on both wrists. These grew rapidly and when opened pus poured out of them. The ulna was bared on the left side and both ulna and radius on the right side. His arms were operated on four times, as the pus pocketed in several places. The right arm became so swollen that amputation was considered. He had been treated with mercurials and at this stage the Wassermann test was found to be positive. He was then given the usual novarseno-benzol treatment and improved immediately after the first injection. During the first six weeks he was in hospital he had a septic temperature curve, but has not had any fever at all since the novarseno-benzol treatment was commenced.

July 29, 1919.—All the acute conditions have subsided. There is still a slight discharge from the necrosed bone. The child has increased in weight and has a good colour. He is walking well and can use the fingers of both hands.

Case VI.—J.F. (March 3, 1919), aged 8 years.

Family history.—The patient is a first child.

He is an anæmic boy, with frontal "bossing." He has lost his temporary upper incisors four years ago, and there is no sign of any second teeth. The Wassermann reaction is positive.

September 8, 1919.—The child is in much better health and has cut one tooth since the injection; it is a marked Hutchinson's tooth.

September 4, 1919.—He has cut his second tooth.

CASE VII.—L.S. (August 17, 1919). A squint has been noticed for four months. Otherwise he is a healthy boy. Dr. Lockhart Gibson examined his fundi and found no hypermetropia and no sign of disease. He had paresis of both external recti.

Family history.—He is the middle child of three. His mother's pregnancies were as follows: (1) miscarriage, (2) an apparently healthy child, with a postive Wassermann reaction, (3), (4), (5), (6), (7) miscarriages, (8) patient, (9) an apparently healthy child, with a positive Wassermann reaction.

The patient's serum gave a positive Wassermann reaction.

September 2, 1919.—He has only had one injection, but his squint has disappeared, except when he tries to focus.

September 9, 1919.—There is now no sign of squint.

CASE VIII.—M.C. (August 5, 1919), aged 5 years.

Family history.—Her elder brother gave a positive Wassermann reaction. He has a gummatous condition of his nose and face.

She has synovitis of the left knee joint and œdema of the leg, which is practically painless. The condition has existed for a fortnight. The Wassermann test gave a positive response.

August 27, 1919.—After three injections the swelling of the knee joint has entirely dissappeared without local application.

CASE IX.—J.S. (August 21, 1919), aged 6 years.

Family history.—Her mother's pregnancies were as follows: (1), (2), (3) healthy children, (4), (5), (6) miscarriages, (7) patient.

The child has always been very strong, and looks well; she has a bright colour. Three months ago, after influenza inoculation, she had a "heart attack." She turned bluish-white and fainted. The doctor found she had marked cardiac dilation. She was kept in bed for two months, but then she became exhausted when allowed to sit up. Later on, when she attempted to walk, she said she was too tired, and the doctor found her heart had dilated after the exertion. On admission her heart seemed to be of normal size, but the sounds were very feeble, though regular. No murmurs were heard. She had marked leucoplakia. The Wassermann reaction was positive.

September 4, 1919.—After three injections the child seems perfectly well. The leucoplakia on her tongue is still marked, but she is running about the verandahs with the other children and never complains of feeling tired. She has had no treatment in hospital except antispecific treatment.

These histories have been selected from the case records to show various manifestations of the disease that have been encountered up-to-date. All in-patients have been under the supervision of members of the visiting honorary staff, and all the Wassermann tests have been done by Dr. Page, the Honorary Pathologist to the Hospital.

A point I would like to emphasize is the fact that congenital syphilis is not a notifiable disease and we have no power to compel parents to continue treatment. Even in our limited experience we have lost sight of, at least, a dozen children, who will suffer throughout their lives from their parents' negligence.

Reports of Cases.

SPASTIC PARAPLEGIA OF SPINAL ORIGIN.[1]

By **Arthur E. Mills, M.B. (Sydney),**
Honorary Physician, Royal Prince Alfred Hospital.

A.C., *æt.* 45 years, was admitted to the Royal Prince Alfred Hospital under my care, suffering from loss of power in the left leg for three months.

Twelve months ago she said that she had "neuritis" (?) and that she was treated for this condition for some time. The seat of the trouble was over the eighth thoracic vertebra. She has not felt well since. Some five months ago she complained of numbness in the place where there had previously been pain. The numbness gradually extended down the left leg. Soon she noticed weakness of the limbs and gradually the power to move was lost. For the past three weeks she has had incontinence of urine occasionally and only during sleep.

On examination there was found loss of power and marked spasticity of both legs, more marked on the left side. There was marked disturbance of sensation to touch, pain and temperature in both legs and feet. The muscle sense was unimpaired, showing that the posterior columns were intact. There was a band of hyperæsthesia over the sixth and seventh thoracic segments. The cranial nerves were unaffected. The upper limbs were quite normal. Examination of the spine revealed scoliosis and kyphosis in the upper thoracic region, involving the fourth, fifth and sixth thoracic vertebræ. There was some tenderness to percussion over these vertebræ.

Here then is a case of spastic paraplegia of spinal origin, of gradual onset. The first symptom was pain, evidently a thoracic root pain. This was succeeded by signs of pressure on the cord, affecting chiefly the lateral columns, leading to spasticity, loss of voluntary power, disturbance of sensation and incontinence of urine. The pressure affected the cord a little lower than the level of the seat of the kyphosis. The question to determine was: What was the cause of the kyphosis? Lumbar puncture yielded a few drops of clear fluid. This and the blood gave a negative response to the Wassermann test.

X-rays showed a spindle-shaped shadow involving those vertebræ placed at the seat of the kyphosis. It was possibly tubercular. A diagnostic dose of old tuberculin was given. There was only a slight rise of temperature, but the patient complained of a return of the pain over the eighth thoracic segment. When a large dose of old tuberculin was given, there was a marked temperature and pulse reaction and the patient again complained of pain in the region of the eighth thoracic segment.

The evidence then was in favour of the process in the spine being tubercular and the cause of pressure on the cord leading to the spasticity, etc.. The onset of the trouble was pain in a localized area for some time. This localized area of pain, if carefully examined, frequently gives evidence of sensory changes and, when persistent, should always suggest a root affection.

MULTIPLE PERIPHERAL NEURITIS, DUE TO TOXÆMIA OF PREGNANCY.[1]

By **Arthur E. Mills, M.B. (Sydney),**
Honorary Physician, Royal Prince Alfred Hospital.

T.C., *æt.* 31 years, was admitted to the Royal Prince Alfred Hospital, complaining of increasing loss of power in her hands and feet since she became pregnant.

Four weeks prior to her admission she suffered from incessant vomiting and gradual loss of power in the arms and legs, accompanied by much wasting of the muscles of the limbs. These symptoms compelled her to take to her bed. She was then four months pregnant. She had begun to vomit during the second week of pregnancy. Two weeks before admission labour had been induced, on account of the progressive weakness and continuous vomiting. The vomiting ceased, but the loss of power became more marked.

On examination it was seen that the arms and legs were much wasted. There was marked wrist drop and foot drop. There was complete inability to move the fingers or hands and to move the toes or feet. There was loss of ankle jerk and knee jerk, wrist jerk and elbow jerk. There was pain on pressure of the muscles of the limbs. When the pressure was marked, the pain became very severe.

Sensation in the limbs was greatly disturbed. The patient could not appreciate light touch with cotton wool and the like. She could not distinguish the head from the point of a pin. She could not differentiate heat from cold.

[1] Notes read at a Clinical Meeting of the New South Wales Branch of the British Medical Association on August 8, 1919.

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The power of localizing a part pressed upon was lost. She had lost the sense of passive position and of passive movement. She could not appreciate two points of a compass, unless they were very widely separated. She could not tell the character of any object placed in her hand.

There was no affection of the cranial nerves and the sphincters were unaffected.

From the above facts there is no doubt that the patient was suffering from peripheral neuritis, that it was associated with persistent vomiting of pregnancy and that it was an expression of the toxæmia of pregnancy.

It is interesting to note that during her three previous pregnancies she suffered much from vomiting. She had given birth to three children. With each successive pregnancy the vomiting was more marked. Labour was induced three times. On the last occasion it was noticed that there was some weakness of the hands and feet, but this quickly disappeared.

Peripheral neuritis due to the toxæmia of pregnancy is not very common, and on that account this well-marked case is worthy of record. For a clinical demonstration of sensory changes no other cases are so valuable. All degrees of sensory disturbance are to be found and this disturbance will be found to affect all forms of sensation. These cases are particularly valuable for demonstrating loss of muscular sense.

The patient has now recovered her sensation and her muscular power is gradually returning.

Reviews.

MODERN THERAPEUTICS.

Thomas Bodley Scott has published an interesting series of essays "written at odd times and in odd places."[1] He quotes largely, with acknowledgement, from other authorities. The style of the book is excellent and the little volume eminently readable and useful. The subjects dealt with are: disorders of the heart, arterio-sclerosis, therapeutic speculations and doubts and chronic bronchitis and bronchial asthma. Dealing with disorders of the heart, he reiterates the now well-known fact that the test of a heart's working power lies not in the perfection of this or that valve, but in the fact of that heart being able to meet the demand of the individual's life or not. He relates the case of an old man who greeted him thus: "To-day is a very important anniversary in my life. It is just fifty years ago that I was rejected for life insurance on account of heart disease." The writer insists on the value of the sphygmograph and syphygmomanometer. He goes carefully into the different kinds of valvular lesions and also dilatation of the heart without manifest valvular disease. Treatment is faithfully detailed. Rest, properly regulated, with changes of position, is insisted upon and also the value of optimism to the patient. Exercises, sea-bathing and massage all have their sphere of usefulness. As regards drug treatment for the causative rheumatic fever, bicarbonate of potash is too depressing and therefore bicarbonate of soda should be combined with salicylate. For the cardiac disorder itself strychnine, adrenalin, digitalis and strophanthus all have their special indications. Particular reference is made to the value of Guy's diuretic pill, in which the mercury steadily stimulates the liver and the squill and digitalis both act on heart and kidneys. Mention is made also of the nitrites and erythrol tetranitrate. "Angina pectoris remains, a beautiful expression, but with as much and as little meaning in it as 'stomach-ache.' It may mean the most serious and agonizing form of heart disease, or it may mean nothing but a mild neuralgia. . . . The expression 'pseudo-angina' becomes equally inaccurate and misleading." Angina is thoroughly studied and its treatment by diet, iodides and trinitrin explained. A most distressing feature of the advanced stages of heart failure is the inability to get any continuous sleep. The one great help in these cases is the hypodermic use of morphine, with hyoscine or atropine. Arterio-sclerosis is largely due to auto-intoxication and "the strain of life." The rôle of alcohol and tobacco are temperately set out. The value of blood-pressure investigations is insisted on. The author gives a full account of the action of digitalis on the heart and blood vessels. Treatment in the pre-sclerotic stage by a purin-free diet is elaborated. For arterio-sclerosis the author gives duodenal extract and thyroid gland, combined with anterior pituitary, testicular and ovarian substance. Testicular extract he advocates especially for females and ovarian extract for males. As regards drugs in the pre-sclerotic stage, he advocates the hippurates of soda, lithia and ammonia. Benzoates are not so well borne by the stomach as hippurates. Bleeding in high tension is of great value. The chapter on therapeutic speculations and doubts is largely devoted to endocrinology. Terms such as "hormones," "chalones," "autacoids" and "harmozones" are explained. A full account is given of the thyroid and parathyroid glands and their connexion with hypothyroidism (myxœdema, cretinism, etc.) and Graves's disease. Thyroid therapy in general is discussed. The author states that in the enuresis of children and young adults thyroid rarely fails to cure, but in some cases enuresis is caused by it or increased. The suprarenal gland and pituitary also are adequately dealt with. The final chapter is devoted to chronic bronchitis and bronchial asthma, with bacteriological findings and vaccine treatment.

[1] Modern Medicine and Some Modern Remedies: Practical Notes for the General Practitioner, by Thomas Bodley Scott, with a Preface by Sir Lauder Brunton, Bart., F.R.S.; Second Edition, 1919. London: H. K. Lewis & Co., Ltd.; Crown 8vo., pp. 198; illustrated. Price, 6s. 6d. net.

TREATMENT OF DISEASE.

"The Medical Annual, A Year-Book of Treatment and Practitioner's Index," for 1919,[1] has reached its thirty-seventh appearance. There is something for everyone in this volume and the discrimination so necessary in a work of its kind is everywhere apparent. In the dictionary of remedies we notice references to stannoxyl, newly recommended for staphylococcal infections, and to copper sulphate, said to have an almost specific action in curing streptococcal skin diseases. In the section devoted to therapeutics there is a valuable article on blood transfusion, including the precautions necessary to prevent disasters from incompatibilities of donor and recipient. In the dictionary of treatment an endeavour has been made to place before the reader anything new and important in the year's work, and we notice references to influenza, encephalitis, nerve surgery among the comprehensive list. The book contains a number of excellent plates and illustrations. To the general practitioner the "Medical Annual" cannot but be of use if he cares to refer to it.

[1] The Medical Annual, 1919: A Year Book of Treatment and Practitioner's Index; Thirty-seventh Year; 1919. Bristol: John Wright & Sons, Limited. London: Simpkin, Marshall, Hamilton, Kent & Co., Ltd.; Demy 8vo., pp. 675. Price £1 0s. 6d. net; postage 1s. extra.

LODGE PRACTICE IN QUEENSLAND.

In August, 1914, the Queensland Branch determined that, in view of the conditions caused by the war, the increase of rates for attendance on friendly society lodge members should be postponed. In our issue of January 2, 1915, we published a short history of the growth of friendly society lodge practice in Queensland and of the events that terminated in April, 1910, by the introduction of a model lodge agreement. This agreement became effective in October, 1914, although the financial clauses were postponed. The text of the agreement was published in our issue of January 23, 1915. The members of the Branch have been required during the past five years to insist on the recognition of the Model Lodge Agreement as a basis of all arrangements with friendly society lodges. It has now been decided that the financial clauses are to be put into force. This action will bring friendly society practice in Queensland into line with that in the neighbouring State. Members are particularly reminded that there may be no exceptions to the rule and that every contract with a friendly society lodge must be contingent on the provisions of the Model Lodge Agreement.

The election of ten members of the Senate of the University of Sydney will take place on November 10, 1919. The nominations closed on October 13, 1919. The medical candidates are Dr. G. H. Abbott, Dr. C. Bickerton Blackburn, Dr. Constance D'Arcy and Dr. Cecil Purser.

The Medical Journal of Australia.

SATURDAY, OCTOBER 18, 1919.

Early Training in Science.

It is becoming apparent that the schools of medicine throughout the British Empire are not keeping pace with the march of science. The student is being placed at a disadvantage because of this failure from the moment he leaves school until he presents himself at the end of five years of cramming for his final test. Indeed, there would seem to be a defect in the preliminary teaching before the student completes his general schooling. School teachers continue to instil the same things into the minds of school children that have been taught during the past century. No attempt is made to adapt the school curriculum to the future calling of the pupil. The boy destined to enter a commercial career has need of a general education, a good knowledge of languages and mathematics and at least a superficial acquaintance with pure science, in order that he may recognize its economic value in the industrial world. A cultured mind is an enormous asset and the mental training of a well-conducted course of Latin and Greek, together with training of a kind calculated to whet the pupil's appetite for good literature will start him in life at a distinct social advantage. Next to good manners, there is no more powerful factor in the social machine than a sound educational schooling. Unfortunately, the public is apt to confuse instruction with education, mere teaching with the cultivation of the mind, financial success in life with greatness. In all callings a man may contribute something toward the welfare of the race. The primary object of education is to make the individual useful to society and to enable him to leave the world a little better than he found it. Up to a certain stage in the child's school training, the process must be directed toward the awakening and stimulation of a desire to gain a quick wit and to understand the thoughts of the best thinkers of the time and of past ages and toward the moulding of character, taste and manners. It is regretful that the child of to-day is no longer taught to write carefully and well and to be able to compose grammatical sentences. Faulty spelling and unformed hand-writing are characteristics of the present epoch. Even among pedagogues these faults are by no means uncommon. When the child reaches an age when a vocation can be chosen, both parents and teachers should take into consideration the aptitudes and abilities of the pupil and select for him a suitable calling. It is at this stage that the school teaching should be adapted to the future vocation of the pupil. To require a boy to spend months and years in construing painfully and slowly the hexameters of Virgil or the masterpieces of Homer, in such a manner that he cannot hope to appreciate the beauties of the language he is constrained to analyse word for word is to stultify his mind and to nauseate him instead of interesting him. In the second part of his school life, the child should be taught to think for himself, especially in the directions in which later on he will be required to use his mental faculties. The future medical student should arrive at the medical school with a practical acquaintance of the natural sciences. He should have acquired a knowledge of physical phenomena and of the methods employed in investigating them. He should have been introduced to the elementary principles of chemistry and biology. In this preparatory training he should be given opportunities to do things for himself. Much of the fascination of scientific work depends on a facility to carry out original observations and this is possible only when laboratory technique is well taught. As the boy gains skill in repeating chemical or physical experiments, he will acquire a thirst for more knowledge. The training of his mind and fingers, of his powers of observation and his powers of understanding must be adapted to modern requirements. It is useless to teach even the rudiments of organic or inorganic chemistry in 1919 according to the formulæ of Liebig. Teachers must therefore move with the times and modify their teaching with the progress of science. The school teacher who knows his work and who is prepared to send his pupils to the university for the purpose of studying medicine, should be a specialist in mind moulding. He should pride himself in having taught his pupils to reason, to require proof for each assertion and to seek the known and possible applications of abstract

scientific facts. The boy should be influenced to exhibit dissatisfaction when presented with an unsolved problem. He should be taught to know how things are made and his training should include sufficient manual work to enable him to be able to carry out ordinary processes.

Added to this preparatory training in science, the future medical student should be taught modern languages. Attention should be paid to idiom, so that when writing or reading in a language other than his own he will be able to express his thoughts and to appreciate the shades of meaning attached to written or spoken sentences of others. In a similar manner, his training in mathematics should be guided by the knowledge that he will need to use arithmetic, algebra, trigonometry and possibly calculus in his life's work. It is unwise to assume that the future student is to be an ordinary treater of disease, whose thinking is done with the minds of the leaders in medical science. Every man entering the medical school is a potential leader. His progress should not be handicapped by want of forethought and limitation in the essential scientific and general groundwork. It is no longer permissible to offer the future medical student a spurious education, an instruction in time-wasting and soul-destroying exercises of doubtful value. Ill-equipped teachers must be replaced by highly trained educationalists, who understand their business and know how to build up a scientific mind.

VITAL STATISTICS.

It is frequently asserted that the medical profession has little concern with vital statistics or with the problems which they illuminate. The majority of medical practitioners take no heed of the warnings and indications of variations in birth- and death-rates. Moreover, it requires special training to handle statistics and it is only too well recognized that almost any doctrine can be supported, if not proven, by statistical records. It must, however, be admitted that *pari passu* with the widening of the functions of the medical profession to the realms of preventive medicine, it becomes a matter of paramount importance to ascertain the incidence and mortalities of diseases occurring among a community, to study the effect of deliberately applied measures to combat infections, as well as of incidental changes of environment and to measure the relationship between social disturbances and the health conditions of the community. Familiarity with vital statistics enables a student to discriminate between evidence based on sufficient data and evidence built up on the insecure foundation of scanty figures or incomplete records. There have been many instances of elaborate calculations made on incomplete records for the purposes of eugenic study. No amount of skill on the part of the mathematician will avail when the data collected for the purpose have not been controlled with the utmost care and confirmed by reliable observation. It has frequently been pointed out that some of the deductions of Karl Pearson or Davenport are open to objection on account of the fact that the data on which many of the calculations were based, were collected by untrained persons over whom the eugenists had no control. It is often extremely difficult to exclude hear-say evidence; its refusal may lead to the reduction of records to a point of practical inutility. To achieve success it is necessary for the whole of the medical profession to contribute to the records. While the value of vital statistics is under-estimated by medical practitioners, we must be prepared to meet defects in the notification of infective processes and even in the accurate certification of causes of death. The error in the recorded births, marriages and deaths is probably small. The facts are easy to ascertain and the record is kept almost automatically. There should be little difficulty in recording accurately the incidence of the notifiable diseases or the exact number of deaths from any given cause. Unfortunately, medical practitioners frequently fail in their duty in this respect, with the result that full reliance cannot always be placed in these statistics.

During the currency of the war, many of the records were unreliable, often for military reasons. The medical profession and the military machine performed their work in an exemplary fashion, but the published figures were intentionally incomplete. We are now gaining an insight into the true state of affairs and gradually the lessons that may be drawn from these records, are being discovered. We would refer anyone who has not yet realized the possible significance of vital statistics in connexion with the

war and the economic condition of the present and the near future, to an admirable and thoughtful article by Captain A. L. Benedict, of the United States Army Medical Corps, published in *The Military Surgeon,* of August, 1919. This author deals with the problems involved in a war of attrition. He recognizes the impossibility of basing his arguments on accurate figures at the present time, but he shows how certain estimates can be made with confidence. He is able to gain a general computation of the extent of the damage to human life in the several combatant countries during the war. The lessons he endeavours to abstract from the unwieldy mass of conflicting evidence, are of value for a world at peace, safeguarded by the League of Nations, or for a struggling mass of nations, living under a constant dread of having to employ brute force and the diabolical machines of modern war to secure economic survival. He recognizes that the bloody war which led to the crumbling of the German Empire, has lessons that should be learned for whatever contingencies the future may have in store for the world. He finds comfort in the fact that the devastation of the former fighting areas must be counteracted to a great extent by compensating gains, that the effective loss of life or utility of human beings, representing less than 3% of the population, has a comparatively slight effect on the general economic welfare of a country and lastly that there is reason to assume that the concomitants of war tend to restore the equilibrium of population with regard to age and sex distribution. These considerations are based on estimates, not on accurate data. How much more important would be the deductions, were the statistics complete and reliable? The preservation of the health and prosperity of a people can be materially influenced by properly directed effort. The only key to the most effective direction is contained in the statistical records.

THE EFFECT OF ALCOHOL ON NEURO-MUSCULAR CO-ORDINATION.

The alcohol question is one on which unanimity of opinion will never be attained. Agreement appears to be possible in regard to a few facts only. It is universally admitted that alcohol is a poison of considerable potency. Taken in large quantities it interferes with the power of thought and deliberate action. Taken in large quantities continuously it leads to a deterioration of the mind and to degenerative processes of the organs and tissues of the body. It is the determining factor in the production of the criminal, the prostitute, the shirker, the unemployed and the unemployable. Of these facts there is no question. When taken in small quantities, either occasionally or habitually, the effects are not readily estimated and attempts to measure the action are complicated by an undoubted tolerance induced by habitual use. The physiological fact that alcohol is oxygenated within the body almost completely to carbon dioxide and therefore can be utilized within certain limits in the metabolism, points to a possible useful action. Pharmacological experiments have taught that alcohol, like chloroform, produces a temporary stimulation, which is followed by a depression of tissue activity. Again, it is possible that both the stimulation and the subsequent depression might be employed usefully under certain conditions. A rational argument is at times put forward that if alcohol be taken in quantities insufficient to produce an apparently deleterious effect, it can be taken without fear. The toxic action in doses of this magnitude is held to be so slight that, even if accumulated, no definite changes would be produced within an ordinary man's life-time. Men drink alcoholic beverages for divers reasons. Some do so because they like the taste. They claim that it does them no harm, provided that they adhere to moderate quantities. Others take alcoholic beverages because they like the effect. This seems to imply that a distinct action is appreciable and the claim that it does not harm is less easy to maintain. Others again take alcohol to drown sorrow. They can scarcely expect the thinking person to accept the contention that it can do no harm. Various endeavours have been made to estimate the effect of small quantities of alcohol on the mental processes. The results of these researches have been subjected to violent criticism and much invective has been employed in the discussions. Dogmatic assertions on this aspect of the subject are liable to be strenuously denied. An interesting series of observations has been carried out by Dr. H. M. Vernon for the purpose of estimating the effect of varying quantities of alcohol on neuro-muscular co-ordination. The results of these observations, together with others supplied by Dr. W. C. Sullivan, Dr. Major Greenwood and Mr. N. B. Dreyer, have been published in a report of the Medical Research Committee of the National Health Insurance.[1] Dr. Vernon's plan of campaign was to ascertain the number of errors made in typing a memorized passage during a period of complete abstinence from alcohol and comparing the result with that during a period when alcohol was taken, either with food or during the intervals between meals. He devised a method of excluding the factor of speed by standardizing the speed as far as was possible and then correcting the average number of errors to a standard speed. In a second series of experiments he employed the target method, by means of which the subject is required to prick points on a paper fastened on a board at arm's distance at a regular rate. It is held that both the typing of a

[1] The Influence of Alcohol on Manual Work and Neuro-Muscular Co-Ordination, by H. M. Vernon, M.D., Medical Research Committee, National Health Insurance. Special Report Series, No. 34, 1919.

memorized paragraph of short length and the pricking of the points in the target test are practically automatic actions, governed by neuro-muscular co-ordination. In all, eight men and five women were subjected to the tests. In the type-writing tests the number of mistakes was increased from twice to four times, although the speed was not markedly diminished. The effect was more marked when the alcohol was taken on an empty stomach and was greater in high concentrations than in more dilute solution. Similar results were noted in the target pricking tests. A few experiments were made with an addition machine. Here again the speed and accuracy was interfered with when alcoholic beverages were taken. Dr. Greenwood claims that the use of the addition machine by a person accustomed to work it is almost automatic. It transpired that when the task performed was one that was very familiar to the subject, the increase in the number of errors was not measurable. The maximum effect of the alcohol was found about 30 minutes after it had been taken on an empty stomach, while the effect disappeared in about two hours. When the alcohol was taken with food, its action was somewhat delayed.

Dr. Vernon describes the observations on himself in great detail. It appears that he is very sensitive to even small quantities of alcohol. When he drank 30 c.cm. of alcohol diluted to the extent of 20%, he experienced a slight degree of vertigo and a feeling of clumsiness when using the type-writer. He felt stupid and sleepy when he took 60 c.cm. of alcohol and on a few occasions vomited a little. We would deny that quantities of alcohol that produce this effect are moderate for the individual in question. In the case of one of the women, the effect was still more marked. Both she and Dr. Vernon are practically abstainers. A skilled lady typist, who is habitually moderate in consuming alcoholic beverages, was able to take one glass of port, equivalent to 22 c.cm. of alcohol, without any measurable impairment of her neuro-muscular co-ordination, but on taking 36.7 c.cm. of alcohol in the form of claret, a "long drink," her mistakes became somewhat more numerous. A very instructive experiment was carried out with a student who had spent three years (1915 to 1917 inclusive) on the West Coast of Africa and had developed the habit of drinking about one-half to two-thirds of a bottle of whisky a day. On his return to England he resumed temperate habits and his consumption averaged about three pints of beer a week. This student could take from 30 c.cm. to 60 c.cm. of alcohol without increasing the number of errors in the target test. This student experienced no appreciable subjective effect of the quantities of alcohol consumed. From the records set out in the report it would seem that a quantity of alcohol habitually consumed, that produced no subjective sensation of vertigo or nausea, did not impair the neuro-muscular co-ordination appreciably. On the other hand, even a slight increase in the amount of alcohol taken had a distinct effect in increasing the number of errors. It is, however, possible that the knowledge that alcohol had been taken, or that the quantity consumed was larger than that habitually used, may have added a psychical effect, complicating the test.

DEFICIENT NUTRITION AND IMMUNITY.

For many years physicians have held to a belief that the underfed and ill nourished are more susceptible to certain contagious diseases and suffer more severely when they become infected, than those of vigorous growth and constitution. This view is not founded upon any particular series of observations, but appears to be the expression of the accumulated experience of medical practice. It is, however, recognized that the starved may survive an intense infection, while the strong may succumb to it. The student of immunity has sometimes suspected that animals show increased immunity when they gain weight during the period of inoculation and exhibit a lower degree of immunization if the weight declines after the injections have begun. The meaning of such results has not been obvious and no general conclusions have been drawn from such experiments. An interesting investigation[1] has recently been completed at the Lister Institute of Preventive Medicine, London, by S. S. Zilva, upon the influence of various deficiencies in the diet on the formation of agglutinins and amboceptors. This investigator has desired to study the effects of definite nutritional disturbances upon the immunity of animals against certain special diseases.

Two sets of pathological changes constituting the conditions of scurvy and beri-beri are known to be due to the absence of specific accessory food factors from the diet. In animals another vitamine soluble in fats plays an important rôle in promoting growth in the young and in maintaining the weight of the adult body in equilibrium. So far, no pathological condition occurring among men has been associated with the absence of this hormone. Again, it is well known that changes in the bones and tissues are brought about by a deficiency of calcium among the inorganic salts of the diet. Further, a reduction of the quantity of phosphorus in the food supply of growing animals produces definite derangements of their development. Experimentally it has been proved that certain amino-acids are essential components of a satisfactory ration. This research worker has produced a series of nutritional changes in rats and guinea pigs by feeding them on rations in which an inorganic element, sodium potassium, calcium, iron, chlorine or phosphorus has been diminished, or from which one of the three accessory food factors has been absent, or in which the sole source of protein has been a limited quantity of caseinogen with, consequently, a deficiency of cystin, or in which gliadin which contains little lysin, has been the only protein present in the diet. The experiments have been arranged with a control series of animals fed on the complete diet.

In seeking for a measure of the degree of immunity the investigator has adopted the estimation of the amounts of agglutinins and amboceptors produced by three injections of a constant dose of *Bacillus typhosus* at weekly intervals. While he recognized that these measurements do not suffice for estimating the degree of immunity with accuracy, they are generally considered to supply indications of the pro-

[1] *Biochemical Journal*, Vol. XIII., p. 172, July, 1919.

gress of its development. When the animals have received a particular diet for several weeks, they have been immunized by three injections of the strain, "Simpson." The emulsion has been prepared from 24 hours' cultures and has contained 1,000 million germs in each cubic centimetre. The vaccine has been heated to 60° C. for thirty minutes and has been kept on ice during each group of experiments. Comparisons have been made by observing the results on a series of increasing dilutions of the antisera. A stock serum served as a control for all the series.

In the first place it has been ascertained that rats fed upon a basal ration of starch, caseinogen and mineral salts to which purified butter, autolysed yeast and extracted lemon juice have been added, form agglutinins and amboceptors as freely as rats fed upon a liberal mixed diet. With this fact firmly established it has been possible to withdraw various components from the ration and to observe the effects on the development of the antibodies. The principal feature of the results has been the absence of any change in the progress of immunization. In the control series of animals three injections caused a considerable formation of specific agglutinins and amboceptors. Although the animals supplied with incomplete diets ceased to grow as rapidly and exhibited extensive pathological changes in some cases, there has been no diminution in the production of antibodies. To this general statement there is one exception. When the diet contains little phosphorus, there has been practically no formation of agglutinins and amboceptors. The quantity of phosphorus in the ration has been lessened by substituting egg-white for caseinogen and omitting the phosphates from the mineral salt mixture. The diet becomes more alkaline in reaction. The guinea-pigs which showed symptoms of advanced scurvy and the rats manifesting neuritic signs have exhibited no diminished capacity to form the two specific antibodies as compared with the control animals, although the animals with deficient diets have been in a dying condition towards the end of the experiments.

This investigation opens up a field of study of much promise. No general conclusions can be based on the effects upon a single type of immunity. Further contributions along the lines of this research will be awaited with interest.

ENTERO-INTOXICATION.

Conflicting views have long been held as to the functions of the intestinal flora and as to the connexion between this flora and certain substances absorbed from the intestine into the blood. Some hold that the intestinal microbes perform a useful function in promoting the digestion or solution of certain constituents of the food. Others believe that intestinal microbes are harmful to the organism. They base their belief upon observations of the relationship between the occurrence of urinary indican and the presence of intestinal microbes. An attempt[1] has been made by A. Distaso and J. H. Sugden to demonstrate that indican and other substances appear in the urine as a result of the activity of intestinal microbes. These investigators have succeeded in showing that indoxyl, skatoxyl and ethereal sulphates appear in the urine when the intestinal flora contains predominantly micro-organisms which produce indol, whereas these substances disappear from the urine when the intestinal flora is transformed so that organisms which do not produce indol are in the ascendancy. It is well known that tryptophane is the end-product of the cleavage of proteins by sterile intestinal juice *in vitro*. Indol only appears when bacteria are present in the digesting material. This fact confirms the classical experiment of Nencki, who showed that the products of digestion do not contain indol when they are withdrawn through an iliac fistula.

When lactose is added to the diet of white rats the fæces acquire a yellow colour and an acid reaction to litmus. This change is due to the development of *Bacillus bifidus communis*, an organism which is frequently present in large numbers in the fæces of breast-fed infants. The organism belongs to the acetogenous group and does not produce indol. Adult rats do not secrete enzymes into the alimentary canal which are capable of hydrolysing lactose. This sugar thus passes into the caecum and provides a medium in the large intestine favouring the rapid multiplication of *Bacillus bifidus communis*. This mode of changing the intestinal flora has been found experimentally more successful than the introduction of the microbes in the food. When other organisms are already established in the intestine, they seem able to maintain their ascendancy over other micro-organisms introduced with the food.

In the investigation two groups of rats have been fed upon a diet of banana, bread and egg or potato and egg. One group received lactose. Estimations have been made of the amount of ethereal sulphates, indoxyl and skatoxyl daily. The groups have then been reversed, the control animals receiving lactose, while the lactose has been withdrawn from the ration of the other rats. The results show clearly that the presence of indoxyl, skatoxyl and ethereal sulphates in the urine corresponds to the presence of a flora composed of microbes which give rise *in vitro* to these bodies. The group of microbes producing these poisons is that of *Bacillus coliformis*. Indoxyl, skatoxyl and ethereal sulphates are absent from the urine when the intestinal flora has been changed so that *Bacillus bifidus communis* becomes predominant.

An interesting feature of this investigation has been the low figure for the total sulphates in the urine when indol is not produced. This fact has been ascribed by Distaso and Sugden to a lessened hydrolysis of the food when intestinal fermentation ceases at the tryptophane stage. Although it must be admitted that the amount of preformed sulphates in the diet will determine the amount of total sulphates in the urine, it would appear that intestinal putrefaction augments the quantity of mineral sulphates in the urine.

This investigation opens up a wide field for research in the laboratory and at the bed-side. It suggests new lines of treatment for the control of intestinal disorders dependent upon putrefactive changes in the food and for the disorders of joints and other parts of the body due to the absorption of these toxic products.

[1] *Biochemical Journal*, Vol. XIII., p. 153, July, 1919.

Abstracts from Current Medical Literature.

ORTHOPÆDIC SURGERY.

(133) Transplantation of Nerves in Gun-Shot Injuries.

For some unknown reason end-to-end nerve suture is not always successful, nor is it always possible to bring the ends of divided nerves into apposition. In other cases nerves may be involved in intensive septic trouble with irreparable damage to their structure and function. T. P. McMurray (*Journ. Orthop. Surg.*, Vol. I., No. 3) has tried, without success, the grafting of cutaneous nerves to fill gaps in divided motor nerves and has concluded that a certain number of patients must be condemned to great disability if procedures involving the nerves are followed exclusively. Actual loss of muscle substance often nullifies the effects of nerve recovery. In many of these cases tendon transplantation holds out the only hope for recovery of function. In the forearm the muscles which can be transplanted, are the *flexor carpi radialis*, the *flexor carpi ulnaris*, the *palmaris longus* and the *pronator teres*. These may all be used for other functions without the normal movements being disturbed to a great extent. In the case of radial nerve paralysis, the only muscle which will produce dorsiflexion of the wrist, is the *pronator teres* and its tendon must be fixed to both radial extensions of the wrist. The *flexor carpi radialis* has a long tendon and may be brought to the dorsum of the wrist with ease, but the *flexor carpi ulnaris* has a very short tendon necessitating dissection of the muscle from the ulna for about 7.5 cm.. Care must be taken that the tendons are not bent at an angle round a hook of bone or the edge of the fascia. For this reason, long incisions are advocated. The *flexor carpi radialis* is inserted into the *extensor brevis pollicis*, and the *abductor pollicis* into the *extensor indicis*. The *extensor pollicis longus* is not included, because extension of the terminal phalanx can be carried out by muscles of the thenar eminence. There are several methods of fixing the transplanted muscle. The author advocates two. In the first method the transplanted tendon is divided, one half is passed above, the other half below the receiving tendon or tendons and the two sections united after passing beyond the receiving tendon. The transplanted tendon is also sutured to the receiving tendons. The second method is to divide the receiving tendons from their muscles and to pass their free ends through the transplanted tendons at different levels. The author lays stress on the necessity of leaving no exposed raw surfaces. The line of suture is closed with two layers. The fingers should never be hyper-extended, but should be put on a splint with about 10° flexion for each joint. Of all transplantation of tendons, that for radial paralysis is the most successful. In this case, however, it is useless to transplant median and ulna muscles which are not strong. In a case of ulna paralysis with complete loss of nerve, the function of flexion in the third and fourth fingers may be restored by suturing the *profundus* and the *sublimis* into similar structures supplied by the median. In complete median paralysis, the *extensor carpi radialis longior* is transplanted into *flexor longus pollicis* by lateral implantation. In the case of deltoid paralysis the author prefers arthrodexis of the shoulder. This enables the patient to make full use of the trapezius and other scapular muscles. In the case of paralysed quadriceps the author advocates transplantation of both the biceps and the *semi-tendinosis*. The knee is kept straight for about six weeks. In paralysis of the common peroneal nerves, tendon fixation of the *tibalis anterior* and *peroneus brevis* gives a good result. In the case of paralysis of plantar flexors of the foot, the *tendo-Achillis* is split into two and one half is embedded in the tibia.

(134) The Surgery of Tendon Transplantation.

In all methods of tendon transposition which have been used in surgical practice, the tendon is isolated from its normal anatomical surroundings, is subjected to a greater or less amount of operative traumatism and little importance has been attached to the restoration of working conditions and the preservation of nutrition. The clinical results have been encouraging, but far from good. The failures are due, in the opinion of most observers, to adhesions between the tendons and the surrounding structures. After reviewing the present state of anatomical knowledge of tendons and of the histological changes which occur after the section of tendons M. A. Bernstein (*Surg., Gynec. and Obstet.*, July, 1919) gives an account of experiments which he undertook. In the first series of two experiments, the tendon was divided at its insertion and transposed through the subcutaneous tissue into a new periosteal insertion. This was to test the Lange method. In the second series the Biesalski-Mayer technique was followed, and in eight experiments the tendon was drawn through the sheath of another tendon. In the third series of ten experiments the tendon was transposed, together with its sheath and peri-tendinous tissues. The tendon sheath was not opened, and in cases where two tendons occupied one sheath, as much of the sheath as was necessary to enclose the transplanted tendon was carried over. Fixation sutures were introduced at the point where the tendon was cut. The tendon was raised by means of the fixation sutures and the peri-tendinous tissues only were cut with scissors on each side of the tendon. A probe was then passed along the paralysed muscle, under ligamentous structures, to the site of implantation, to which the tendon was drawn by means of the fixation sutures. The tendon throughout the operation was protected by its own coverings. The period of immobilization was from eight to twenty-one days. Microscopic sections were taken through different levels of the tendons. In the first series sections showed marked leucocytic infiltration around the tendon bundles and penetrating into the tendon, while characteristic granulation tissue was seen in the tissues surrounding the tendon. In the second series the tendon was practically unchanged, but there were marked proliferative changes in the sheath and fibrous adhesions between the tendon and the sheath wall. In the third series the sheath was clear. The parietal surface showed a leucocytic infiltration and other cell changes, including a thickening of the plica. The epitenon (the covering of the tendon) remained unimpaired, as did also the endotenon. In discussing the results of the experiments, the author says that the central fact about the third series was the absence of all inflammatory processes between the tendon and the sheath. Thus, there was no opportunity for adhesions to form. The second important fact is that the method avoids the possibility of fibrosis of the tendon, a condition which was observed in other methods. A claim is therefore made that the third method is the true physiological method of transplanting tendons.

(135) Metacarpal and Phalangeal Traction Splint.

A practical appliance for treating fractures of the metacarpus and of the phalanges is described by Henry L. Hess (*Journ. Orthop. Surg.*, Vol. I., No. 5). The splint consists of heavy steel wire, bent to encircle the hand and padded to form a collar which rests on the styloid process of the ulna and on the radial side in the interval between the thumb and index finger. From the latter point on the collar an extension is carried parallel to the index finger 5 cm. beyond the finger tips and then bent at right angles, so as to overhang the finger. This piece is bent on itself to form a loop through which traction cords may be drawn. Extension may be applied to the fingers by means of adhesive plaster. The splint is interchangeable for either hand and has the additional advantage of allowing dressings while extension is maintained.

(136) Suppurative Arthritis of the Knee.

A physiological method of treating suppurating knee joints is described by J. Everidge (*Brit. Journ. of Surg.*, April, 1919). The unsatisfactory results from immobilization of these cases and the drawbacks of all surgical methods of draining the knee joint are emphasized. The main principles are free drainage of the pus and the maintenance of a circulation of synovial fluid with the maximum amount of resisting power. To carry these into

effect transverse incisions are made into the joint from the outer and inner borders of the patella and active mobilization commenced at once. A splint with an overhead counterpoise system is used to carry out this mobilization. Of twenty-three cases recorded, a useful mobile joint was obtained in 50%. Amputation was necessary in only one case, but popliteal suppuration occurred quite frequently.

MORPHOLOGY.

(137) Anlagen of the Pars Tuberalis of the Hypophysis.

The epithelial portion of the hypophysis consists of three parts. The *pars anterior propria* constitutes the main bulk of the gland. The *pars intermedia* is a thin layer, epithelial in nature, which becomes intimately associated with the neural lobe. The most recently recognized epithelial lobe is the *pars tuberalis*, which extends forwards from the junction of the other two lobes, surrounds the infundibular stalk and spreads out under the brain floor in close relation to the *tuber cinereum*. The *pars tuberalis* has been confused with the *pars intermedia*, but these two parts have been shown to be different, both in adult structure and in developmental history. W. J. Atwell and Ida Sitler have found that the *Anlagen* of the *pars tuberalis* may be discerned very early and precede the development of the *pars intermedia* by a considerable period of time. Their first observations were on the rabbit, but in the *Anatomical Record* (Vol. 15, No. 4, November 20, 1918) they record their studies of wax-plate reconstructions of the epithelial portion of the hypophysis from chick embryos of 48 to 144 hours of incubation. In the 48-hour chick the hypophyseal pouch is well formed and there is no indication of the lateral lobes. The anterior end of the foregut, which is to form Seessel's pouch, extends farther cranially than does the hypophyseal pouch. The oral membrane is intact. In the 59-hour chick (30 pairs of segments) the hypophyseal pouch has deepened and exhibits two lateral enlargements near its attachment to the oral epithelium. These are the *Anlagen* of the lateral lobes from which the tuberal processes develope. There is a small perforation in the oral membrane. After 67 hours' incubation the lateral lobes show more prominently, due to the hypophyseal pouch beginning to be constricted off from the oral cavity. Each lateral lobe contains a lumen communicating with the cavity of the main hypophyseal sac, with the dorsal wall of which Seessel's pouch is in contact. In the 72-hour chick the hypophyseal *Anlage* is closely applied to the brain wall. The lateral lobes are more prominent and the lumen of the pouch extends well into each lateral lobe. There is an extensive communication between the cavity of Seessel's pouch and the hypophyseal sac. In the five days (120 hours) chick a definite hypophyseal stalk has formed, communicating between the lumen of the hypophysis and the oral cavity. The lateral lobes have increased in size, their transverse diameter being almost twice that of the superior part of Rathke's pouch. They are united around the nasal end of the hypophysis, and their lumina no longer communicate clearly with the hypophyseal cavity. Seessel's pouch is now represented by a solid bud of cells, just dorsal to the hypophyseal stalk. At the end of six days' (144 hours) incubation the hypophyseal stalk is much elongated and has become solid. Distinct tuberal processes have now formed from the lateral lobes and are directed toward the brain wall. They take origin from about the middle of the inferior or proximal half of the hypophysis, with which the distal half, being bent dorsally, now forms an angle of 90°. From these observations it is evident that the lateral lobes are formed from the nasal wall of the early hypophyseal *Anlage*. Their early appearance in development indicates that they and their derivative in higher vertebrates, the *pars tuberalis*, are of fundamental phylogenetic importance.

(138) Post-Natal Obliteration of Fœtal Blood Passages.

Two processes are involved in the occlusion of the fœtal blood passages, *viz.*, the *foramen ovale*, the *ductus arteriosus* and the *ductus venosus*, after birth. First is the simple functional closure at or immediately following birth, and second comes the permanent anatomical closure, which occurs at a later period. It is with the time of the latter that K. E. Scammon and E. H. Norris are concerned in their article presented in *The Anatomical Record* (Vol. 15, No. 4, November 20, 1918). The current concepts that obliteration proceeds very rapidly in the first few days of life are traced back to Billard, who presented the first statistical study on a large amount of data on the subject has accumulated, which the authors have attempted to include in the present study. The records include observations on children who were born at term and also some prematurely born, as no appreciable difference in the time of obliteration of the fœtal blood passages is to be noted. The results presented show that the time of obliteration of these fœtal blood passages is later than is commonly assumed. Three fairly distinct periods are to be noted in the process: an initial period, with a low rate of obliteration; a middle period, in which the rate of obliteration rises, and a terminal period, in which the rate is again slower. Obliteration is most rapid in the case of the *ductus venosus*. Slow in the first week, the process reaches its maximum before the end of the first month, and in the third month the duct is closed in all cases. It has been shown by several observers that the vein sometimes running in the centre of the ligament of the *ductus venosus* after this period is a new vessel developed after the closure of the *ductus venosus* and is not derived from the remains of this trunk. The *ductus arteriosus* closes more slowly and the maximum is not reached until the second month. In three-fourths of all cases it is closed by the end of three months and in over 95% by the end of the first year. The period of obliterative process of the *foramen ovale* is a matter of years, rather than months. Beginning very slowly, the maximum is reached near the end of the first month, with a slightly diminishing rate to the end of the third month, by which time it is closed in about one-third of all cases. During the second three months of infant life the rate of obliteration declines rapidly and after that it decreases very slowly for an indefinite period. At the end of the first year the fœtal blood passages are closed in about one-half of all cases. In the second decennium they are closed in about two-thirds and at maturity in about 72%.

(139) Development of the Seminal Vesicles in Man.

E. M. Watson presents the results of a study of the development of the seminal vesicles in man in the *Americ. Journ. of Anatomy* (Vol. 24, No. 4, November 15, 1918) in the attempt to fill the gap there is in the literature on this subject covering the course of development of these organs in fœtal life. The material used consisted of fœtuses from 80 mm. crown-rump length to 340 mm. (*i.e.*, from thirteen weeks to full term) which were preserved in 4% formalin, imbedded in paraffin and cut serially for study. The seminal vesicles first make their appearance during the thirteenth week of fœtal life as later evaginations from the lower portion of the Wolffian ducts. Their lateral diameter at this stage is greater than the antero-posterior length. Sacculations of the vesicles are to be noticed in the fourteenth week, at which time three of them, small, but distinct, may be counted at a given level in each vesicle. The dilatation of the Wolffian ducts in their lower portion, to form the ampullæ of the deferent ducts, is seen in the nineteenth week, as also is the beginning of the sacculation of the ampullæ, in the form of slight irregularities of their lumina. Each vesicle now shows three to eight distinct sacculations at a given level, and the lateral and antero-posterior diameters are about equal. At the twenty-first week the sacculations of the Wolffian ducts have become well developed and the dilatation of the ducts to form the ampullæ have assumed very nearly their proportion at birth. At the twenty-fifth week the vesicles and ampullæ have assumed practically their adult form as regards their general topography and sacculations. Between the twenty-fifth and thirty-first week the prostatic utricle opens into the posterior urethra and at the latter date has a bifid lumen, indicating the union of two partially fused tubes. Five to seven distinct sacculations in each vesicle at a given level are now to be seen. At birth the vesicles show at a given level seven distinct sacculations at one time. At this stage many of the diverticula are traversed by a network of fine trabeculæ.

British Medical Association News.

SCIENTIFIC.

A meeting of the New South Wales Branch was held *at* the B.M.A. Building, 30-34 Elizabeth Street, Sydney, on September 26, 1919, Dr. F. P. Sandes, the President, in the chair.

Dr. M. C. Lidwill read a paper on "Vertigo" (see page 323).

Dr. A. J. Brady stated that he was much indebted to Dr. Lidwill for his paper. He had approached the subject from the right direction, the anatomical and physiological basis. He ventured to point out that he had not explained how the vertical or the horizontal canals could be stimulated in the tests to which he had referred. Dr. Brady then proceeded to read a few notes that he had prepared. He recognized that much of what he would speak had already been dealt with by Dr. Lidwill.

In the year 1861 Menière had described the train of symptoms which went under the name of Menière's disease, or labyrinthine apoplexia. The train of symptoms was also known under the name of Menière's symptom complex; sudden deafness, tinnitus, vertigo and vomiting. The symptoms might develope further, so that the patient would stagger and fall down unconscious. In the case of a young girl who had died in such a seizure, Menière had found on *post mortem* examination an effusion of blood-stained fluid in the semi-circular canals and vestibule of the labyrinth. There was no other pathological change present. The seizure had overtaken a healthy young girl. The cause was attributed to sudden cessation of the catamenia. The French physician was the first to trace the train of symptoms known by his name to its origin in the labyrinth, as shown by *post mortem* examination. Medical practitioners were too prone to assume that all cases of labyrinthine apoplexia were of the Menière type, *viz.*, that there was an effusion of blood or blood-stained fluid into the labyrinth. The term apoplexia was associated in their minds with cerebral apoplexy, due to sudden effusion of blood into the substance of the brain. Labyrinthine apoplexia was to be interpreted according to the derivation of the term *αποπλήσσειν*, to strike down, to stun. The symptom of labyrinthine apoplexia could be induced without hæmorrhage or exudation into the labyrinth, simply by an active movement in the intra-labyrinthine fluid. The movement on a rotatory chair would produce it, or it could be brought about more dramatically by a violet concussion on the intra-labyrinthine fluid by a blow on the chin. The patient was struck down and stunned. He was knocked out. He suffered vertigo in an acute form, a symptom, not a disease. On the following day he would probably be all right, better, perhaps, than an individual who had given a concussion to his labyrinth through his stomach and nervous system by the excessive use of alcohol and tobacco.

To one in the habit of treating ear diseases, the symptom of vertigo was intimately, almost inseparably, connected with some form of labyrinthine disturbance. Extrinsic causes, such as heat or cold, or alterations in air pressure, acting through the structures of the middle ear, were capable of causing this symptom. This was noticeable in diseases of the middle ear with a defect in the *membrana tympani*, particularly where a chronic suppuration of the middle ear had caused a defect in the capsule, the bony envelope which surrounded and protected the membranous labyrinth. Care should be taken in these cases when syringing the ear to have the water of the temperature exactly suited to the patient. If the water were too hot or too cold, or if excessive pressure were used in the injection of the fluid, the result would be an attack of vertigo. If the practitioner became very bold, he might induce the full picture of the Menière's symptom complex. Dr. Brady had seen in a hospital out-patient department a patient fall off the chair as if he were shot through the head while a nurse was syringing the ear. There were other forms of intrinsic disease of the labyrinth than that described by Menière that gave rise to attacks of vertigo. The pathology was not the same and the symptoms were different. Regarding the latter, there was no *αποπλήσσειν*, striking down or stunning, in the meaning of the Greek word. Periodical attacks of giddiness were experienced, tinnitus was always present and dulness of hearing in varying degree was constant. Tuning-fork tests placed the defect in the nerve, not in the sound-conducting apparatus. The cause of these changes in the labyrinth was sometimes obscure, but not infrequently it was syphilis in its early or later secondary stages. He had on several occasions diagnosed syphilis in subjects who had experienced absolutely no other manifestations of the disease than that found in the labyrinth. It was lucky for them when they were discovered. If they were not like the "Private Secretary—lost" with appropriate treatment they could be cured. The manifestations of vertigo might be classed as cyclonic, tornadic and volcanic. In the first two a storm more or less violet was set up in the intra-labyrinthine fluid. There might or might not be organic changes in the structures of the labyrinth. The storm could be set up by causes outside the area, as atmospheric disturbances were brought about by changes outside the immediate area affected by the storm. The volcanic form implied an irruption or effusion of an organic nature in the area. The term Menière's disease should be confined to the last mentioned form. From whatever region the message was sent out, whether the auditory nucleus in the brain or the more distant digestive tract, it appeared probable that the static labyrinth was the headquarters, where the message was translated into action and where an attack of vertigo was developed. As he had attempted to show, this attack was the immediate concern of the headquarters.

The human ear had two important functions. The one, understood by the man in the street, was the sense of hearing. An end-organ, the cochlea, received impulses called sound waves and transmitted them along a nerve to the brain, where the message was interpreted. Dr. Brady thought that many educated people regarded this as the sole function of the ear. The kinetic-static function of the labyrinth was hardly less important. Its end-organ comprised the semi-circular canals and the vestibule. From this situation the message was sent and it conveyed to the person his sense of position in space. When a person learned to ride a bicycle or to pilot an aeroplane, he called upon his vestibular apparatus to direct him. In every-day life, if one did not wish to bump the man in the street when passing one must keep one's position in space. As mentioned before, various agencies could disturb this sense. A man could be drunk in his labyrinth without the action of alcohol, yet it was known that too much of this commodity would set the labyrinthine compass swinging in an erratic manner, so that the owner was seen to steer a zig-zag course. One of the wonders of the age was the "bird man." In a few years, under the stimulus of war, he had leapt thousands of centuries in a labyrinthine sense, that was to say, as far as the use of his balancing apparatus was concerned. The internal combustion engine gave him propelling power superior to the majority of birds, but he had to go back to his pterodactile ancestor for his sense of balance. Vertigo from whatever cause was a manifestation of disturbance of the vestibular apparatus of the labyrinth.

Dr. A. E. Mills thought that Dr. Lidwill had attempted to do too much within a short space of time. He had approached the subject from the only sound side. There were a few points concerning which he felt himself constrained to make some critical remarks. Dr. Lidwill had spoken glibly about high blood pressure and end arteries. It was an old fallacy to assume that a localized affection was capable of being accounted for by seeking for an end artery. If this explanation were sufficient every person with a raised blood pressure would have vertigo. The explanation of symptoms being produced by the effect of a high blood pressure acting on a particular end artery was wholly insufficient. If the end artery explanation were true, the patient would suffer persistently from vertigo. Dr. Mills would like to have a better explanation suggested. He had none to offer. In the next place Dr. Lidwill had dismissed the treatment of high blood pressure with a few simple sentences. He had said that if the patient had a high blood pressure, it was necessary to lower it and if the patient had a low blood pressure, it was necessary to heighten it. The matter could not be settled so easily. He objected to this unphysiological way of handling the subject. Dr. Lidwill had suggested giving trinitrin to reduce the pressure and ergot and dieting to raise it. He claimed that the effect on the blood pressure by these measures would not be apparent. But even if it were possible to raise or lower blood pressure at will, the

physician would have to do it persistently and continuously. Dr. Mills regarded this form of treatment as pure empyricism. He referred to Jones and Fisher's book on vertigo, which was, in his opinion, the only book on the subject that had given him any satisfaction.

Dr. R. S. Godsall spoke from the otologist's point of view. He considered, with Dr. Lidwill, that it was essential that there should be the closest co-operation between the physician and the otologist. The latter could do little more than determine whether or not the cause of the vertigo lay within the labyrinth. He claimed that the actual tests could be carried out by the otologist in a very short time, probably ten minutes, while the reading of the charts would not occupy more than an hour.

Dr. Sinclair Gillies thought that it would have been advantageous if the subject of vertigo had been taken up by several workers, attacking it from different points of view. From the practical aspect he thought that when a patient complained of giddiness, the most important thing was to determine whether the giddiness was of vital significance, presaging some serious condition, or whether it was of small moment. The practitioner would have to determine whether the vertigo was due to a change in the heart muscle, the blood vessels, the brain or some other organ. As a rule the vertigo did not appear without other signs when there was a serious affection. The commonest cause lay within the semi-circular canals. In this connexion the otologist would help very much in ascertaining the condition of the auditory apparatus. The detection of oto-sclerosis and of deafness of various forms was imperative. Turning to the question of high blood pressure, Dr. Gillies maintained that this was not a disease but a symptom. Of itself it produced no signs and symptoms. High blood pressure was an indication of an intoxication and the symptoms were those of the intoxication or of commencing failure of compensation. It should, however, be recognized that the majority of persons with high blood pressure passed through many years without any symptoms until at length the signs of failure of circulation manifested themselves. In the next place he spoke of the prospect of treatment bringing about relief of symptoms. The majority of persons with vertigo suffered from slight deafness and some tinnitus. He usually gave them some bromide and persuaded them to pay no attention to the deafness and tinnitus. The patient soon became resigned to the slight infirmity and the vertigo lessened. He thought that it was a very serious mistake to tell a patient with vertigo that he had sclerosis of his basilar arteries and a high blood pressure without careful consideration. The patient often became a confirmed neurasthenic when he learned this story.

Dr. H. Seaward March referred to the cases described by Gowers in his book, "The Borderline of Epilepsy." These patients suffered from attacks of vertigo due to degenerative changes in the labyrinth and the attacks gradually changed their character until they assumed the type of a definite *petit mal*. In regard to the determination of the causes of vertigo, he pointed out that the main value of the otological charts lay in the fact that they enabled the practitioner to differentiate peripheral from central conditions. The peripheral changes could be excluded by the employment of the various tests. He did not agree with Dr. Godsall that these tests could be carried out quickly.

Dr. T. S. Kirkland thought that Dr. Gillies's suggestion to divide the subject up into chapters was excellent. When he, the speaker, was in general practice he had come across many cases of mild vertigo. Since he had taken up special work as an otologist he had seen many more cases, including the severe forms. Dr. Lidwill had not mentioned fistula of the external semi-circular canal as a cause of vertigo. Giddiness often followed the changes in the various ear diseases. Increased pressure on the stapes produced it, as did increased pressure in the labyrinth. Cerumen was a common cause. In regard to suppuration of the labyrinth he stated that this was not so common as Bárány and his Viennese colleagues taught ten years ago.

Dr. C. E. Corlette asked Dr. Lidwill why he preferred dilute hydrobromic acid to the bromides. The dilute acid contained relatively little bromine.

Dr. G. R. Halloran referred to an additional cause of vertigo. This was concussion of the labyrinth due to gun fire. He admitted that it was much more common for the cochlea to become affected than the static labyrinth. In fact, it would almost seem as if the static labyrinth were relatively immune to these concussion shocks. He disapproved of the frequent operations performed on the labyrinth in the Viennese clinics and advocated conservatism in the treatment of labyrinthine conditions.

Dr. F. P. Sandes spoke of the work done by Victor Horsley in the localization of cerebello-pontine tumours. He did not agree with Dr. Mills concerning end arteries. It was possible that slight differences in the physical condition of the end artery might determine certain changes in the circulation. He asked Dr. Lidwill whether any balancing experiments had been carried out in lower animals, such as fishes.

In his reply Dr. Lidwill said that he had not described Bárány's reactions in his paper, because it would have been impossible to have done so in the time at his disposal. To Dr. Mills he pointed out that when the end artery was affected with sclerotic changes, the blood supply to the part was cut off and a localized anæmia of the labyrinth resulted. It had to be remembered that the labyrinth was a closed box and that any obstruction to the circulation necessarily led to increased pressure. Moveover, the nerve becoming congested in this manner, passed into a state of irritability. He certainly did not suggest that the alteration in the blood pressure could be removed by the treatment he employed. Trinitrin was a palliative of value until the general condition could be influenced by such means as dieting. He would not use it continuously. The same applied to his remarks about ergot. In regard to the persistence of vertigo, he stated that the symptom was frequently only present when the patient performed certain movements which led to an irritation of the vestibular nerve. In reply to Dr. Corlette he stated that he used large doses of dilute hydrobromic acid. He had not mentioned fistula of the labyrinth because he was a physician and not an otologist. He did not claim to have dealt at all exhaustively with the subject from the otologist's point of view. He did not know any balancing experiments carried out on fishes. The experimental work was Bárány's and Schiff's.

MEDICO-POLITICAL.

A meeting of the Queensland Branch was held at the B.M.A. Rooms, Adelaide Street, Brisbane, on September 19, 1919, Dr. A. Sutton, the President, in the chair.

On the motion of Dr. J. Lockhart Gibson it was resolved that letters of sympathy be sent to Mrs. South and Dr. H. J. Stewart.

The President welcomed Colonel A. H. Marks, C.B.E., D.S.O., *Croix de Guerre*, on his return from active service.

Appointment of the Honorary Medical Staff of the Brisbane General Hospital.

Dr. J. C. Hemsley, the Honorary Secretary, read a report of the Council on the method of appointment of the honorary medical staff of the Brisbane General Hospital, as follows:—

1. The Council is of opinion that an advisory medical board should be elected, which would make all appointments to the honorary staff of the Brisbane Hospital, and also appoint the medical superintendent and resident medical officers.
2. This board should act in an advisory capacity to the Government on all matters pertaining to hospital management.
3. Members of the board should be paid for their services and hold office for three years.
4. Board to consist of—
   - Two members of honorary staff of the Hospital.
   - Three members of the Queensland Branch of the British Medical Association (not members of the staff).
   - One member of the Queensland Branch of the British Medical Association nominated by the Government.
   - One member of the University staff.
5. Honorary appointments to be tenable for five years.
6. Retiring honorary to be eligible for re-election once, provided that board may make exceptions with regard to University lecturers.

7. No personal canvass to be allowed.

8. Applications must be called for by public advertisement for each vacancy occurring.

9. Honoraries may not be transferred from one department to another. Those desiring to do so must resign one appointment before applying for another.

10. Honorary members of the staff of this Hospital shall not hold any honorary appointments at another.

11. All honorary appointments to be resigned at the age of 65.

12. All out-patient appointments to carry privilege of attending 25% of the beds of corresponding in-door appointments.

13. Any out-patient honorary should have privilege of applying for corresponding in-door appointment without resigning his office.

14. In the event of these suggestions being agreed to by the Government, the whole of the present honorary staff to have twelve months' notice to resign.

15. The advisory board will appoint a fresh staff, the members of present staff being eligible for re-election.

16. It is suggested that, other things being equal, preference shall be given to returned soldiers.

Dr. Hemsley moved and Dr. J. Espie Dods seconded the adoption of the report. Whereupon Dr. A. J. Turner moved and Dr. W. F. Taylor seconded that the report be considered paragraph by paragraph. The amendment was carried.

Dr. E. S. Jackson asked if the report was to apply to the Brisbane General Hospital alone, or to all public hospitals. He would wish that the suggestions contained in the report should be applied to all the public hospitals in the metropolitan area, including the Mater Misericordiæ Hospital. He begged leave to move this. Dr. J. M. Thomson was prepared to second the motion. Dr. R. Graham Brown, Dr. W. F. Taylor and Dr. J. Espie Dods objected to the inclusion of the Mater Misericordiæ Hospital. The President pointed out that the meeting had been called for the specific purpose of considering the report. He ruled that it was not in order to introduce matters lying outside the scope of the report.

Paragraph 1.—Dr. A. J. Turner moved the adoption of the paragraph. Dr. J. C. Hemsley seconded the motion.

Dr. R. Graham Brown moved as an amendment that the paragraph read:—

That the Queensland Branch of the British Medical Association is of opinion that an advisory board should be elected.

The amendment was seconded by Dr. W. R. Kelly. The amendment was put to the meeting and was lost.

Dr. E. S. Jackson moved:—

That the honorary medical staff should form an advisory medical board to the Hospital and should recommend all appointments of the honorary staff and also recommend appointments of the medical superintendent.

The amendment was seconded by Dr. J. M. Thomson and was lost.

Dr. J. Lockhart Gibson moved: —

That the meeting is of opinion that an advisory medical board should be elected, which would recommend all appointments to the honorary staff and also the appointment of the medical superintendent of the Brisbane General Hospital.

Dr. J. C. Hemsley seconded the amendment, which was carried. On being put as a substantive motion, it was carried.

Paragraph 2.—On the motion of Dr. A. J. Turner, seconded by Dr. J. C. Hemsley, it was resolved that this paragraph be deleted.

Paragraph 3.—Dr. E. S. Jackson moved the deletion of the words: "be paid for their services." Dr. J. Lockhart Gibson seconded the amendment, which was carried. The paragraph as amended was approved.

Paragraph 4.—Dr. J. Lockhart Gibson moved that the paragraph be altered to provide for a board consisting of:—

Three members of the honorary staff elected by the honorary staff.

Two members of the Queensland Branch of the British Medical Association (not members of the staff) elected by the Queensland Branch of the British Medical Association.

One member of the University staff, nominated by the University Senate.

Dr. A. J. Turner seconded the amendment, which was carried.

Paragraph 5.—This paragraph was adopted without amendment.

Paragraph 6.—Dr. A. J. Turner moved and Dr. A. H. Marks seconded that the paragraph read as follows:—

Retiring honorary be eligible for re-election.

The amendment was accepted.

Paragraph 7.—The suggestion to omit the paragraph failed to secure sufficient support. On the motion of Dr. E. S. Jackson, seconded by Dr. J. Lockhart Gibson, it was resolved to delete the word "personal."

Paragraphs 8 and 9.—These paragraphs were adopted without amendment.

Paragraph 10.—Dr. A. J. Turner moved that the words: "maternity hospitals excepted" be added to the paragraph.

The amendment was seconded by Dr. E. S. Jackson and the amended paragraph was accepted.

Paragraph 11.—This paragraph was adopted after the proposal to alter the age for retirement from 65 to 60 years had been negatived.

Paragraph 12.—Dr. J. Lockhart Gibson moved that the paragraph read:—

Out-patient appointments to carry privilege of attending not less than five beds.

Dr. A. J. Turner seconded the amendment, which was carried.

Paragraphs 13 and 14.—Both paragraphs were adopted.

Paragraph 15.—It was resolved to adopt the paragraph amended by the substitution of the word "recommend" for the word "appoint."

Paragraph 16.—Dr. F. W. Page moved that the paragraph read:—

Other things being equal, preference be given to those who have volunteered for war service.

The amendment was seconded by Dr. P. J. Kerwin and was carried.

On the motion of Dr. J. Espie Dods, seconded by Dr. A. J. Turner, the report, as amended, was accepted.

John Ross, Esq., M.B., Ch.M., 1895 (Univ. Edin.), of Herberton, Queensland, has been elected a member of the Queensland Branch.

Douglas Robson Wallman, Esq., M.B., B.S., 1918, (Univ. Adel.), of 52 George's Crescent, Drummoyne, has been nominated for election as a member of the New South Wales Branch.

Naval and Military.

HONOURS.

The following Birthday Honours are announced in the *Commonwealth of Australia Gazette*, No. 113, of October 6, 1919. Several of these awards have been published in *The Medical Journal of Australia* in earlier issues.

To be Additional Members of the Second Class, or Knight Commanders, of the Most Distinguished Order of Saint Michael and Saint George.

Major-General Sir Neville Reginald Howse, V.C., K.C.B., Australian Imperial Force.

Colonel Henry Carr Maudsley, C.M.G., C.B.E., Australian Imperial Force.

To be Additional Member of the Third Class, or Companion, of the Most Distinguished Order of Saint Michael and Saint George.

Lieutenant-Colonel John Hubback Anderson, C.B.E., Australian Army Medical Corps.

To be Knight Commander of the Military Division of the Most Excellent Order of the British Empire.

Colonel (Honorary Surgeon-General) Charles Snodgrass Ryan, C.B., C.M.G., Australian Army Medical Corps.

To be Commanders of the Military Division of the Most Excellent Order of the British Empire.

Colonel Reginald Jefferey Millard, C.M.G., Australian Army Medical Corps.
Lieutenant-Colonel (Temporary Colonel) David Gifford Croll. Australian Army Medical Corps.

To be Officers of the Military Division of the Most Excellent Order of the British Empire.

Colonel Walter Ernest Summons, Australian Army Medical Corps.
Lieutenant-Colonel Charles Edgar Dennis, Australian Army Medical Corps.
Lieutenant-Colonel William Love Kirkwood, Australian Army Medical Corps.
Lieutenant-Colonel Glen Alburn William James Knight, Australian Army Medical Corps.
Lieutenant-Colonel Athelstan John Henton Saw, Australian Army Medical Corps.
Lieutenant-Colonel Hugh Corbett Taylor-Young, Australian Army Medical Corps.
Major Alexander Cook, Australian Army Medical Corps.
Major Arthur Madgwick Davidson, Australian Army Medical Corps.
Major Norman Maxwell Gibson, Australian Army Medical Corps.
Major (Temporary Lieutenant-Colonel) Lewis Wilmer Jeffries, D.S.O., Australian Army Medical Corps.
Major John Macdonald, Australian Army Medical Corps.

Awarded the Distinguished Service Order.

Lieutenant-Colonel Gerald Eugene Macdonald Stuart, Australian Army Medical Corps, commanding 3rd Light Horse Field Ambulance.
Major (Temporary Lieutenant-Colonel) Clive Vallack Single, Australian Army Medical Corps, commanding 4th Light Horse Field Ambulance.

Knight of Grace of the Order of the Hospital of St. John of Jerusalem in England.

Major-General Sir Neville Reginald Howse, V.C., K.C.B., F.R.C.S..

The following have been mentioned in the despatches of General Sir E. H. H. Allenby, G.C.B., G.C.M.G., Commander-in-Chief, Egyptian Expeditionary Force, dated March 5, 1919:

First Military District.

Colonel D. G. Croll, Australian Army Medical Corps.
Lieutenant-Colonel (Temporary Colonel) R. Fowler, O.B.E., Australian Army Medical Corps.
Major (Temporary Lieutenant-Colonel) C. V. Single, Australian Army Medical Corps.

Second Military District.

Lieutenant-Colonel W. L. Kirkwood, Australian Army Medical Corps.
Major W. Evans, M.C., Australian Army Medical Corps.
Major E. B. M. Vance, Australian Army Medical Corps.
Captain F. G. Griffiths, Australian Army Medical Corps.
Captain C. W. W. Murray, Australian Army Medical Corps.

Third Military District.

Colonel R. M. Downes, C.M.G., Australian Army Medical Corps.
Colonel W. E. Summons, Australian Army Medical Corps.
Major (Temporary Lieutenant-Colonel G. E. McD. Stuart, Australian Army Medical Corps.
Major A. M. Davidson, Australian Army Medical Corps.

Fifth Military District.

Lieutenant-Colonel A. J. H. Saw, Australian Army Medical Corps.
Major M. Yuille, Australian Army Medical Corps.

Sixth Military District.

Major G. Douglass, Australian Army Medical Corps.

APPOINTMENTS.

The following appointments, etc., have been announced in the *Commonwealth of Australia Gazette*, No. 114, of October 9, 1919:—

Australian Imperial Force.

First Military District.

Major E. E. Brown, Australian Army Medical Corps, to be temporary Lieutenant-Colonel, *vice* Saw. Dated 8th March, 1919.

Second Military District.

Captain A. E. Aspinall, Australian Army Medical Corps, to be Major. Dated 11th November, 1918.
Major J. A. James, Australian Army Medical Corps, is granted the rank of Honorary Lieutenant-Colonel. Dated 8th April, 1919.
Major A. H. Joyce, Australian Army Medical Corps, to be Deputy Assistant Director Medical Services, Australian Headquarters, Egypt, *vice* Lieutenant-Colonel A. L. Dawson. Dated 13th March, 1919.
Major E. K. Parry, M.C., Australian Army Medical Corps, to be temporary Lieutenant-Colonel, *vice* Single. Dated 24th February, 1919.

Fourth Military District.

Major J. R. Muirhead, D.S.O., Australian Army Medical Corps, is granted the honorary rank of Lieutenant-Colonel. Dated 25th March, 1919.

Fifth Military District.

Lieutenant-Colonel R. S. McGregor, D.S.O., Australian Army Medical Corps, is granted the rank of Honorary Colonel. Dated 7th April, 1919.

APPOINTMENTS TERMINATED.

Second Military District.

Major E. M. Humphery. Dated 20th August, 1919.
Major N. M. A. Alexander. Dated 19th August, 1919.
Captain W. L. Millett. Dated 30th August, 1919.

Third Military District.

Colonel W. E. Summons, O.B.E.. Dated 10th August, 1919.
Major A. F. Maclure, O.B.E.. Dated 17th October, 1919.
Major H. B. Lee, D.S.O., M.C.. Dated 13th September, 1919.
Major C. C. Simson, M.C.. Dated 14th July, 1919.
Major J. C. G. Glassford, M.C.. Dated 1st June, 1919.
Captain E. Mackenzie. Dated 29th August, 1919.
Captain S. L. Germon. Dated 6th September, 1919.
Captain E. Field. Dated 10th July, 1919.
Captain G. V. Davies, D.S.O.. Dated 7th August, 1919.
Captain W. J. Forshaw. Dated 20th August, 1919.
Captain A. O. V. Tymms. Dated 14th September, 1919.

Fifth Military District.

Captain L. T. Baker. Dated 3rd September, 1919.

Australian Military Forces.

APPOINTMENTS, PROMOTIONS, ETC..

First Military District.

Australian Army Medical Corps Reserve—

Honorary Major P. E. Voss, M.C., to be transferred from the Australian Army Medical Corps Reserve, Second Military District. Dated 1st September, 1919.

Second Military District.

Australian Army Medical Corps Reserve—

Roland Jordan Pittar and Eric Hamilton White to be Honorary Captains. Dated 19th August, 1919.
Garnet Reginald Halloran to be Honorary Major. Dated 1st September, 1919.
Honorary Major P. E. Voss, M.C., to be transferred to the Australian Army Medical Corps Reserve, First Military District. Dated 1st September, 1919.

Third Military District.

Australian Army Medical Corps—

Captain S. G. L. Catchlove to be granted the temporary rank and pay of Major from 15th April,

1919, to 15th August, 1919, whilst employed (part time) at No. 11 Australian General Hospital.

Fourth Military District.

Australian Army Medical Corps Reserve—

Honorary Captain H. Powell, M.C., relinquishes the temporary rank of Major on ceasing to be employed as Registrar, No. 7 Australian General Hospital. Dated 31st August, 1919.

GRANT OF HONORARY RANK.

The undermentioned, who have served in the Australian Imperial Force as Commissioned Officers, having the rank held by them in the Australian Imperial Force confirmed as honorary rank in the Australian Military Forces, as follows:—

Officers who, on appointment for active service outside Australia, were serving and are now serving in the Australian Military Forces:—

Second Military District.

To be Honorary Majors—

Captain E. M. Humphery, Australian Army Medical Corps Reserve. Dated 9th May, 1918.

Captain (provisionally) N. M. A. Alexander, Australian Army Medical Corps. Dated 25th February, 1919.

Third Military District.

To be Honorary Colonel—

Major W. E. Summons, O.B.E., Australian Army Medical Corps. Dated 11th November, 1918.

To be Honorary Major—

Honorary Captain J. C. G. Glassford, M.C., Australian Army Medical Corps Reserve. Dated 11th November, 1918.

Fourth Military District.

The notification regarding the grant of honorary rank to Major C. T. C. De Crespigny, D.S.O., contained in Executive Minute No. 513/1919, promulgated on page 1186 of *Commonwealth of Australia Gazette*, No. 92, dated 24th July, 1919, be cancelled.

The undermentioned, who have served in the Australian Imperial Force as Commissioned Officers, being appointed to the Reserve of Officers (temporarily), and being granted Honorary Rank equivalent to that held by them in the Australian Imperial Force:—

Officers who, on appointment for active service outside Australia, were not serving in the Australian Military Forces:—

Second Military District.

To be Honorary Captains—

W. L. Millett. Dated 30th March, 1917.

G. A. Lawrance, M.C.. Dated 29th August, 1916.

Third Military District.

To be Honorary Majors—

A. F. Maclure, O.B.E.. Dated 27th April, 1917.

H. B. Lee, D.S.O., M.C.. Dated 20th June, 1917.

C. C. Simson, M.C.. Dated 28th January, 1918.

To be Honorary Captains—

E. Mackenzie. Dated 18th April, 1916.

S. L. Germon. Dated 22nd May, 1916.

E. Field. Dated 30th June, 1916.

G. V. Davies, D.S.O.. Dated 22nd September, 1916.

Fourth Military District.

To be Honorary Lieutenant-Colonel—

H. S. Newland, D.S.O.. Dated 1st January, 1916.

To be Honorary Captain—

E. B. Thomas. Dated 1st March, 1916.

Fifth Military District.

To be Honorary Captain—

L. T. Baker. Dated 4th January, 1917.

THE HEALTH OF SCHOOL CHILDREN IN VICTORIA.

If it is true, as is so frequently maintained, that health is the greatest asset of a nation, it can scarcely be gainsaid that a system of providing educational establishments for children on a comprehensive scale and of exhibiting parsimony in the department that has the charge of the health of the children and of the hygienic condition of the schools is a wasteful one. In Victoria during the year 1917-1918 the Department of Public Instruction expended no less a sum than £1,327,094. Of this amount, £1,462 was spent on medical inspection, including the upkeep of bush nursing. It is unnecessary to argue concerning the value of a well-planned and properly carried-out system of medical inspection of school children, associated with adequate following-up and insistence of treatment of the defects discovered. The importance of suitable sanitary arrangements in schools, of good lighting, ventilation and heating arrangement and of an adjustment of the school programme to the physical and mental qualities of the pupils is universally admitted. In addition to these functions of the medical department of the education authority, there is that of estimating the mental development of the backward scholars and the study of those children who are properly classed among the mental defectives or morons. During the year under consideration there were 161,011 children in attendance at the Elementary State Schools of Victoria, while the estimated enrolment of State school children amounted to approximately 32,500 more. The total number of teachers employed for the education of these children was 4,343. The Department has been satisfied to employ two School Medical Officers to safeguard the health of all these children and teachers! Moreover, the money spent on the health of the children and students at the Teachers' College was but £400 more than the salary paid to the Director of Education. Not a word is devoted by the Minister of Public Instruction in his annual report to the subject of school hygiene, nor to the subject of medical inspection. He does not even mention in his references to the reports of the heads of the sub-departments the fact that the School Medical Inspectors have been permitted to fill one half page. Unless the Department awakens to the full sense of its responsibility in this direction, Victoria will come to occupy the unenviable position of a State that neglects its most important duty. The obvious effect will be a deterioration of the health of both the child and the adult population.

Drs. Jane S. Grieg and Eileen Fitzgerald state that their efforts are handicapped by war conditions and war economies. The word economy is misapplied. It is actual extravagance to neglect the health of children at a time when the world needs efficiency to make good the waste of war. Efficiency is impossible without health. We are not informed of the number of children examined during the year, but as we learn that the work of the Medical Officers included the preparation and delivery of lectures on hygiene at the Teachers' College, the Domestic Arts Hostel and the Swimming Schools, the holding of special courses on the care of children, home nursing and first-aid and the examination of candidates for the public service, of applicants for sick leave and of the women students at the Teachers' College, it is apparent that the inspection of school children must have been limited in extent. It is stated that the inspection was carried out at six State elementary schools (the total number of elementary day schools in the State is 2,135), one registered primary school and three special schools. In their report the School Medical Officers point out that they have received proof of the beneficial results of medical inspection. An inquiry at a charitable institution for children revealed the necessity of a complete change of the household management and method of administration. The children who had formerly not been examined, were found to be much more in need of medical control than those regularly under inspection.

University Intelligence.

UNIVERSITY OF WESTERN AUSTRALIA.

A meeting of the Senate of the University of Western Australia was held on October 6, 1919. It was resolved to grant permission to Professors Dakin and Wilsmore to represent biology and chemistry respectively on the Australian National Research Council.

The Senate gave favourable consideration to the proposals from the Council of the University of Melbourne in regard to the provision of scientific study of the Pacific Islands. The study will include the history, languages, anthropology, topography, geology and biology of the Islands.

Correspondence.

THE VICTORIAN LUNACY DEPARTMENT.

Sir,—In the Victorian Lunacy Department there are three temporary medical officers receiving £450 and allowances. The permanent junior and senior medical officers receive less money and the senior medical officers fewer allowances than the temporary officers. What hope has the Victorian Lunacy Department of making any headway when its permanent medical officers are treated less favourably than temporary men, who are quite new to the treatment of insane patients?

Yours, etc.,

"EQUITY."

October 8, 1919.

THE MIND FACTOR IN DISEASE.

Sir,—In your issue of October 11, under the above heading, Fraser writes: "Some sixteen years ago I entered medicine at the Sydney University. In passing through its various classes, I heard a reference made to hypnotism once, to 'suggestion' never. As in the medical school, so, too, in the hospital, I never heard the slightest allusion made to psycho-therapy by any of the teachers in clinical medicine."

In my address as President of the Section of Medicine at the Australasian Medical Congress in Melbourne in October, 1908, and published subsequently in the *Australasian Medical Gazette*, I emphasized the "Mental Factor in Medical Practice" and in my lectures and medical teaching at the Royal Prince Alfred Hospital, for some years before that date and ever since, I have never failed to impress upon the student the importance of recognizing the value of suggestion in the treatment of all forms of disease. If the actual terms "suggestion" and "psycho-therapy" have not been mentioned, this principle of treatment has been constantly applied in my practice.

Yours, etc.,

GEORGE E. RENNIE.

Macquarie Street, Sydney.
October 14, 1919.

Proceedings of the Australian Medical Boards.

NEW SOUTH WALES.

The undermentioned have been registered, under the provisions of the *Medical Act, 1912 and 1915*, as duly qualified medical practitioners:—

Bluett, Cecil, M.R.C.S., Eng., 1919; L.R.C.P., Lond., 1919; L.M.S.S.A., Lond., 1914, Tamworth.

Brown, Thomas Frederick, L.R.C.P., Lond., 1909; M.R.C.S., Eng., 1909; D.P.H., Lond., 1918, Burwood.

Cameron, Gavin Holme, M.B., 1915; Mast. Surg., 1917, Univ. Sydney, R.A. Hospital for Children.

Henderson, William Alfred Leslie, M.B., Bac. Surg., 1915, Univ. Melbourne, 40 Drummoyne Road, Drummoyne.

Hill, Gordon Fitz, M.B., 1915, Univ. Sydney, Bent Street, Sydney.

Marshall, Thomas Edward, M.B., 1916; Mast. Surg., 1919, Univ. Sydney, England.

Mitchell, Clarence Archibald, M.B., 1916, Univ. Sydney, Albert Avenue, Chatswood.

Robertson, Susan Annie, M.B., Ch.B., Edin., 1917, Gordon Crescent, Stanmore.

Southey, Marcus Vicars, M.B., Bac. Surg., 1913, Univ. Melbourne, Jerilderie.

Additional Registration.

Sanbrook, Ebenezer Alexander, Mast. Surg., 1919, Univ. Sydney.

TASMANIA.

The undermentioned have been registered by the Medical Council of Tasmania, appointed under the provisions of *The Medical Act, 1908*, as legally qualified medical practitioners:—

Gerald Bailey Carter, M.B., B.S., B.A.O., Dublin University, 1896.

Thomas Carlyle Leichardt Camm, M.B., Melb., 1902, B.S., Melb., 1903.

James Gordon Hislop, M.B., B.S., Melb., 1918.

Charles Cunningham, M.B., B.S., Melb., 1918.

William Stuart Hawthorne, M.B., Ch.M., Sydney, 1915.

William Robert Mathews, M.R.C.S., Eng., 1892, L.R.C.P., Lond., 1892.

Obituary.

ROBERT EDMUND WOOLNOUGH.

On the morning of October 9, 1919, the medical profession in Sydney was dismayed by the announcement in the daily press of the death of Dr. Robert Edmund Woolnough, of Belmore. His colleagues had known him as a man of untiring energy. About three months ago he and several other members of his family were attacked by the prevailing epidemic disease. Mrs. Woolnough unfortunately suffered a very acute attack and succumbed after a short illness. Their infant son also died. Robert Woolnough left his bed of sickness to be near his wife during her last moments of life, at a time when he should have submitted to rigorous nursing and absolute rest. Within a few days of this tragic happening he again took up his professional duties. There is little doubt that this premature return to activity led to a serious impairment of his general health.

Robert Edmund Woolnough was born at Wallsend, New South Wales, on August 28, 1878. He was the son of the late Reverend James Woolnough. His early education was conducted at the Superior Public School at Erskineville, where he gained a scholarship passing him to the Sydney High School. After about eighteen months at the High School he entered a wool broker's office, intending to take up a business career. The call of the scholastic life, however, was too insistent. He relinquished his office work and entered Newington College, Stanmore, where he won the Wigram Allen and Schofield Scholarships. He became *dux* of his school. In due course he matriculated and entered the Medical School at the University of Sydney, where he became a very successful student. In 1903 he graduated in medicine and surgery with honours. Before engaging in general practice he served for a time as Medical Superintendent at the Newcastle Hospital. He was then appointed Senior Resident Medical Officer at the Coast Hospital and, a little later, was called upon to carry out the duties of the Medical Superintendent during the illness of the incumbent of this position. About 1905 or 1906 he settled at Kempsey on the Macleay. For five years he carried on a successful country practice, but apparently his inclinations were in the direction of city conditions. In 1911 he moved to Belmore, where he soon established himself firmly and became very popular among the residents. Shortly after he settled in Belmore, steps were taken by the New South Wales Branch of the British Medical Association to re-adjust the conditions of friendly society practice. In 1913 the lodges, after much negotiation, agreed to the terms set out in the Common Form of Agreement. Not all the lodges, however, came into line at first. Robert Edmund Woolnough remained loyal to his profession and to his colleagues, although this loyalty involved financial loss and grave personal inconvenience to him. The open and upright manner in which he faced the situation commanded the respect of patients as well as colleagues. For a time he left Belmore and started at Lindfield, but after twelve months the residents of Belmore appealed to him to return. He acceded to their request and was conducting a very large and valuable practice at Belmore at the time of his death.

Dr. Woolnough was for many years a member of the New South Wales Branch of the British Medical Association and was a frequent attendant at meetings of the Branch. He

took a wide interest in the affairs of medical practice in the district in which he resided and enjoyed the confidence of his colleagues. He was elected Assistant Honorary Secretary of the Western Suburbs Medical Association about six months ago, in succession to Dr. H. B. Oxenham.

Much sympathy is felt for his two daughters and one son who survive him. His brother, Dr. S. J. Woolnough, of Punchbowl, New South Wales, has received numerous messages of condolence from those who knew Robert Edmund Woolnough socially and professionally. He was a man of considerable wit and much resource, an admirable husband and an equally admirable father.

Books Received.

FIELD AMBULANCE ORGANIZATION AND ADMINISTRATION, by Lieutenant-Colonel Jas. Hardie Neil, N.Z.M.C.; 1919. London: H. K. Lewis & Co., Limited; Crown 8vo., pp. 125, with diagrams. Price, 4s. 6d. net.

Medical Appointments.

The appointment of Dr. S. T. Appleford (B.M.A.) and of Dr. H. W. F. Mitchell (B.M.A.) as Public Vaccinators for the South-Eastern District, Victoria, is announced in the *Victoria Gazette* of October 8, 1919.

Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, locum tenentes sought, etc., see "Advertiser," page xxi.

University of Sydney: Professor of Medicine.

The University of Melbourne: Lecturer in Pathology.

Department of Public Health, Queensland: Medical Officer.

Sydney Hospital: Pathologist.

Medical Appointments.

IMPORTANT NOTICE.

Medical practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, 429 Strand, London, W.C.

Branch.	APPOINTMENTS.
VICTORIA. (Hon. Sec., Medical Society Hall, East Melbourne.)	All Friendly Society Lodges, Institutes, Medical Dispensaries and other Contract Practice. Australian Prudential Association Proprietary, Limited. Mutual National Provident Club. National Provident Association.
QUEENSLAND. (Hon. Sec., B.M.A. Building, Adelaide Street, Brisbane.)	Australian Natives' Association. Brisbane United Friendly Society Institute. Cloncurry Hospital.
TASMANIA. (Hon. Sec., Macquarie Street, Hobart.)	Medical Officers in all State-aided Hospitals in Tasmania.
SOUTH AUSTRALIA. (Hon. Sec., 3 North Terrace, Adelaide.)	Contract Practice Appointments at Renmark. Contract Practice Appointments in South Australia.
WESTERN AUSTRALIA. (Hon. Sec., 6 Bank of New South Wales Chambers, St. George's Terrace, Perth.	All Contract Practice Appointments in Western Australia.
NEW SOUTH WALES. (Hon. Sec., 30-34 Elizabeth Street, Sydney.)	Australian Natives' Association. Balmain United Friendly Societies' Dispensary. Canterbury United Friendly Societies' Dispensary. Friendly Society Lodges at Casino. Friendly Society Lodges at Lithgow. Friendly Society Lodges at Parramatta, Auburn and Lidcombe. Leichhardt and Petersham Dispensary. Manchester Unity Oddfellows' Medical Institute, Elizabeth Street, Sydney. Marrickville United Friendly Societies' Dispensary. Newcastle Collieries—Killingworth, Seaham Nos. 1 and 2, West Wallsend. North Sydney United Friendly Societies. People's Prudential Benefit Society. Phœnix Mutual Provident Society..
NEW ZEALAND: WELLINGTON DIVISION. (Hon. Sec., Wellington.)	Friendly Society Lodges, Wellington, New Zealand.

Diary for the Month.

Oct. 18.—Northern Suburbs Med. Assoc. (N.S.W.).
Oct. 21.—Tas. Branch, B.M.A., Branch and Council.
Oct. 21.—N.S.W. Branch, B.M.A., Executive and Finance Committee.
Oct. 24.—Q. Branch, B.M.A., Council.
Oct. 28.—N.S.W. Branch, B.M.A.; Medical Politics Committee; Organization and Science Committee.
Oct. 29.—Vic. Branch, B.M.A., Council.
Oct. 30—S. Aust. Branch, B.M.A..
Oct. 31—N.S.W. Branch, B.M.A..
Nov. 3 to 12—Vic. Branch, B.M.A.; nominations received for Council.
Nov. 4—Tas. Branch, B.M.A., Branch and Council.
Nov. 7—Q. Branch, B.M.A..
Nov. 11—N.S.W. Branch, B.M.A., Ethics Committee.
Nov. 12—Vic. Branch, B.M.A..
Nov. 12—North Eastern Med. Assoc. (N.S.W.).
Nov. 13—Vic. Branch, B.M.A. Council.
Nov. 14—N.S.W. Branch, B.M.A., Clinical.
Nov. 14—Q. Branch, B.M.A., Council.
Nov. 14.—S. Aust. Branch, B.M.A..

EDITORIAL NOTICES.

Manuscripts forwarded to the office of this journal cannot under any circumstances be returned.

Original articles forwarded for publication are understood to be offered to *The Medical Journal of Australia* alone, unless the contrary be stated.

All communications should be addressed to "The Editor," *The Medical Journal of Australia*, B.M.A. Building, 30-34 Elizabeth Street, Sydney.